# The Builder.

VOL. XXXII.—No. 1630.


## *Sanitary Work.*

SOON after the passing of the Public Health Act, 1872, and when the sanitary authorities began to advertise for inspectors of nuisances, stating that they would be required to make a sanitary survey of the district, it was asked by some intending applicants, "What is a sanitary survey?" We devoted an article to an answer to this question, which seems to have been of some use. Other questions have recently been put concerning the general duties of an inspector of nuisances, and whether the office is one that would be derogatory to an architect? Certainly not. The status of the office requires elevation. Its importance in the social economy of the country is immense, but the ordinary conception of its importance has hitherto been, or until recently was, low; in consequence, probably, of the inability of majorities of public Boards in the first place; secondly, of the small salaries; and lastly, of the intrinsic value of the services rendered (rather their valuelessness).

Foul houses and foul people go together, for the most part. It is the greater part,—the majority, the mass,—that is to be regarded. The status of the many being low, that of the few cannot long continue superior. The superior physical condition of a family who by fortune obtain a good start, is soon brought low by the degradation of the other people with whom they are obliged to associate.

It might be supposed that the few worthy people amongst the many unworthy would be the means of elevating the status of the rest; but the disproportion of numbers is too great; the impression made is too soon effaced, and instead of an elevation of the many, we have in fact a lowering of the tone of the better few.

The great thing to be accompanied by steady and persistent action in sanitary works is the elevation of the status of those people whose circumstances are at present low and base.

The inborn worth of people should be preserved; but in those exceptional cases where we find a clean house in a dirty neighbourhood, we do not see it long continue so. An evident struggle with adverse circumstances goes on for a time, but despair ensues, and the worthy people sink to the common level. The causes of this degradation are numerous, and some of them (but they are secondary) are out of the reach of the inspector of nuisances; but the primary causes are want of drainage, want of a sufficient quantity of good water, want of fresh air in houses, want of sufficient "accommodation" to preserve the sense of decency, want of sufficient space in houses, and the continued sight of ugliness by children, leading them to base thoughts and actions. The secondary causes are irritability and ill-temper of the wife, weakness and sickness of children, dissatisfaction and drunkenness of the husband. The evil to be overcome is gigantic, and it will not be much altered by attempts to rectify the secondary causes while those which are primary retain their evil influence. They must be removed, and to do this sanitary affairs must be conducted on principles different from those upon which small commercial affairs are conducted. In larger commercial affairs there is a nearer resemblance between the principles upon which they are conducted, and those which should govern action in sanitary affairs. In both these hope and trust in future reward govern immediate action. With more or less confidence dependent on his judgment, the merchant hesitates not to make some present outlay of money, in order to achieve a future benefit. He may die in the interim; but he does not consider himself apart from his posterity, but as the present guardian of their welfare.

With confidence that proper sanitary action now will benefit the next, and the next, and every succeeding generation, each member of a sanitary authority would as little hesitate to do the work required. It is for those who know that by removing the causes of insanitary conditions people grow healthier to inspire this confidence in those who govern, but who have not turned their attention in any serious and sustained manner to the subject.

The analogy between an outlay of money by a merchant, who may die soon after, or even before, he receives any personal benefit from it, and the outlay of money on sanitary work by the present generation, who may possibly receive no direct benefit from the action, holds good in every way; but the importance of the one is much greater than that of the other, inasmuch as it is of a more permanent nature. To implant health,—or to remove the causes of ill-health,—in succeeding generations, is to lay the foundation of their prosperity, not only in the material, but in the moral sense.

The interest of each living person goes much further than his mere self; in the present it goes laterally as far as the welfare of all other living persons, and in the future it goes to that of all descendants. The interest of each member of a sanitary authority is to help those who cannot help themselves, to maintain their health, their rectitude of mind and body.

Sanitary work has two aspects,—one the rectification of permanent works, and the other a watchfulness over the small every-day occurrences and tendencies to go wrong which are natural in communities. Centuries of neglect have produced evils hardly removable, but, however gigantic the evil, it must be overcome before that desirable watchfulness over small insanitary beginnings can have any useful effect.

The large present outlay of money on sanitary works in order to rectify accumulated evils is the penalty of long-continued neglect of these small things, and it is hopeless to think of shirking the duty of rectification, as well as to begin the watchfulness desired. To do so would be to salve over a canker which would necessarily exert its evil influence again and again until removed. What, then, is it that must be done? What are the larger evils to be remedied, and what the small ones to be watched over? Perhaps no one but an inspector of nuisances or a medical officer of health can tell us from actual experience. The clergyman might tell us, but he meddles not with mundane affairs. He hopes to conduct the soul to Heaven let its earthly body be ever so foul. He does well to inspire hope, but he does better who begets a hope that springs from the perfect health of the individual and the community in which he lives. A healthy individual can have no hope that springs within himself if he daily sees around him wretchedness and misery, and deformity of body and mind,—ugliness in many shapes, unconsciously expressed and therefore perpetuated.

A long time ago, the conductor of this journal said,—"As the homes, so the people," and the experience of inspectors of nuisances must confirm that. The sanitary condition of a house-hold embraces the quality of the air we breathe, the water we drink, the food we eat, the sights we see, and the sounds we hear. Does any one think we cannot have all these of good quality? He must then be without hope, for all are necessary to the health of the individual, and many more to that of the community.

Any one inclined to ask the question whether the acceptance of the office of inspector of nuisances would be derogatory to him may answer his own question, when he knows what he would have to do. He would have, then, to rise early, in order to have sufficient leisure to consider his day's work; to begin that work not later than nine o'clock; to keep as steadily before him as he can, in the midst of distraction, the principle above stated (and if he should not agree with that he had better not accept the office); to recognise the absolute right of the medical officer of health to dictate what shall be done, but to go about his own work in the absence of any specific instructions from that officer; to examine with sufficient minuteness the source from which the inhabitants of every house procure water for domestic use; to examine with like precision the state of the house-drainage; to see what "accommodation" there is to each house; to see, in the case of common outside privies, into what receptacle the contents are discharged, and in the case of waterclosets, whether sewage gas comes into the house by that means, or whether the soil-pipe is properly ventilated; to see whether there is a pigstye on the premises, and if so in what condition it is kept, and, if foul, to see whether that arises from the negligence of the occupier of the house to sweep out the filth and remove it daily, or whether the floor is so rough as to make this impossible, that being the fault of the owner of the house; to see whether the house is damp, and if so from what cause, and whether the rainwater of the roof is properly carried off by means of eaves-gutters, and whether it is caught and stored for use; to see whether there is a thorough communication of external air between the front and the back of the house; to observe, in a general and unobtrusive manner, whether there is a large family, and if so to see what bed-rooms there are, and, if a suspicion of overcrowding arises, to measure the rooms; to take, when required, a sample of any kind of food for analysis, under the Food Adulteration Act. If before structural sanitary defects can be rectified, an epidemic disease occurs,—as, for instance, small-pox, typhoid, typhus fever, or other zymotic disease,—then to disinfect drains, cesspools, houses, clothes, and generally to do what he can to prevent the spread of the disease (which, however, will probably be very little; still it must be done, for the sake of the bare chance of being able to do that little by this means); to inspect frequently, all slaughter-houses, tallow-melting-houses, and other premises where noxious trades are carried on. He will be careful of the respect due to the privacy of even the poorest person in his own house, and will always ask to be admitted before he enters. Entering he will quickly see the state of things, and if there are indications of want of thought in the tenant about such common sanitary work as he may do himself, the inspector will in the first instance explain what is required to be done; in the second he will warn him of the consequences of neglecting to do what he has been required to do, and he will mostly find that sufficient; but if the tenant is obstinate the third step is to summon him to answer to the magistrates for his fault. This is a very objectionable step, on many grounds, and ought to be avoided if possible; for an inspector must never lose sight of the fact that he is walking, talking, and ordering in the midst of ignorance and of faults, for which the individuals before him are not responsible: they

are the victims of the neglect of their forefathers, and by parity of reasoning the inspector may conceive how very important an office he holds, having the power—being, in fact, himself the means of improving the physical health of the people. He has two colleagues, each of whom he must faithfully serve—the parson and the doctor; the first passively, the other actively. The one he holds in reverence, the other he assists. He admits that any very much better state of things is not to be expected in our generation, but he expects that it will be hereafter, and he knows that unless it is begun it never will be brought about. While the parson prays he works. He allies himself with the doctor, and does what he can to transform ugliness into beauty. If he is an architect of the true stamp, all the better; he can then do many useful things which he who is not an architect cannot do. For one, he can explain to the sanitary authority how the air breathed in houses may be brought up to the standard of freshness fixed upon by the doctor as essential to good health. One good architect who would do this anywhere in England might be well assured that it would not be derogatory to him, even if he had to accept the office of Inspector of Nuisances in order to do it.

## MODERN PARISH CHURCHES.

THE impression of some unenlightened readers on the perusal of this neatly got up little book,* would certainly be that the first adjective in the title was a misprint, and that the word should have been "Mediæval." It will be found, however, that there are sentences in the book obviously incompatible with such a theory, and we must therefore accept it as a *bonâ fide* tract by a modern architect on what he believes to be the genuine requirements of modern churches. If in all his ideas upon these requirements he is really supported by the judgment of modern ecclesiastics, so much the worse, one may say, for the modern ecclesiastics. Regarding the book as a manual for the modern church-builder, we, from one point of view, should describe it as in many respects, antiquated and superstitious, but enlightened by gleams of practical common sense. It is but justice to add that the common sense, where it breaks out, seems to be mostly the writer's own, and that much of the absurdity he shares with a somewhat small, perhaps, but very vigorous and self-asserting, clique of church officials, church architects, and church milliners.

The object of the book, much of which first appeared in the shape of articles in a paper entitled the *Sacristy*, is to define the right treatment and arrangement of every portion of a parish church, from the general plan to the alms-box and notice-boards; and the author professes to ignore the standard set up as to what is "correct," and to inquire what is convenient and suitable, taking for his motto the rather jejune couplet of Pope,—

> "Something there is more needful than expense,
> And something previous ev'n to taste,—'tis sense."

If we could get "sense" into these matters it would be a great step gained, unquestionably; only we must be sure what kind of sense it is; for there seems now to be a sort of fantastic ecclesiastical or -ogical sixth sense, which sadly cuts away the ground from our old, tried, homely friend, "common sense." To reconcile with common sense the existence, in a work like the present, of chapters "on minor altars and side-chapels" and "on confessionals" is fortunately not a part of our task; but it is impossible to pass over these and other indications of the spirit of the author without pointing out to him that in assuming that "modern parish churches" at large require all these provisions, he is simply begging a large part of a very large question, and claiming for a certain phase of ecclesiological dilettantism a general acceptance which it has not obtained, and is not likely to obtain. His book would have been more correctly entitled "Churches for Revived Mediæval Ritual."

One of the author's positions is that the churches which boast the greatest "correctness" of precedent do not deal fairly with the matter, even from the ecclesiological point of view, and are designed in some of their details too much on a system of mere conventional or traditional "correctness," which is at times at variance with the very ritual it professes to subserve. An instance given of this is the placing of the "credence-table" to the north of the altar, which is always assumed to be the correct position. Mr. Micklethwaite avers that there is no satisfactory ground for this at all, even in precedent, and that convenience dictates that the "credence" should be in the south wall of the chancel, because the "celebrant," standing in front of the altar, will then naturally turn to receive in his right hand anything brought to him from the credence-table, whereas in the ordinary position of the latter he would have to use his left. While there is sense in the inference, our readers will not fail to discover how much is assumed in the premises. Some readers will even think that the writer is insidious. While assuming an offhand tone, scoffing at "correctness," arguing for naturalness, the whole tendency of his teaching is to bring about the restoration of the signs and symbols of opinions pronounced erroneous by the Reformed Church of England.

We have long taught, and so concur in the opinion with Mr. Micklethwaite, that symmetry is in no way opposed to the spirit of Gothic architecture; on the contrary, that symmetry in plan is to be regarded in general as an object, when no special end can be attained by disregarding it; but we can hardly avoid a smile at one of the reasons in favour of symmetry, viz., that the separation of the sexes in church is a practice which is becoming more and more largely adopted, and which necessitates a symmetrical treatment and equal areas on each side of the central line. It is impossible to pass such a statement without an expression of more than regret for this revival, in civilised days, of a practice which there can be little doubt arose from the fact that in the days of the early church the batches of Pagan converts could not be trusted to behave decorously, or without a hope that those bound by ties of family and of affection will long be seen joining together in worship. We are with our author again, however, when, in his chapter on "pews," or fixed seats (not necessarily with doors), he defends these as far superior in convenience and architectural effect to the ninepenny rush-bottomed chairs with which some of the latest churches have been ignominiously filled up. The employment of galleries is objected to, not on architectural grounds, for Mr. Micklethwaite sees, what is the common-sense view of the matter, that a gallery when designed from the first as part of the edifice, may be made to subserve architectural effect as well as any other feature; but because the occupants of side galleries must sit sideways to, and not fronting, the principal point of interest in the building: this is a valid practical objection, just as applicable to other classes of buildings; side galleries in a concert-room, for instance, are always a nuisance. Into the *pros* and *cons* of the position of the font we cannot enter, but may note the injunction that the waste-pipe from it should not be connected with a common drain, "but with a dry well provided for the purpose, where the water may sink into the ground." On sanitary grounds the advice is good. The chapter on the organ, which is contributed by Mr. Somers Clarke, jun. (who, we understand, is himself an organist and choir-master), is a very good and sensible one indeed, and shows considerable acquaintance with the subject. We may leave to those who are interested in such things the arguments as to "re-tables" (which is the last new piece of slang in the ecclesiological dictionary) and altar-shelves; but concur in the remark that a turned or capped wooden altar-rail is often very much better and more dignified in effect than the wrought metal filagree which has become more the fashion, and that the simpler and plainer the table is the better, the more so as it is almost the universal practice to drape it.

Among the chapters devoted to practical subjects we may say that the remarks on warming and ventilating are worth attention, as also the account of the misguided and impious heating "engineer" who wished to carry his pipes behind the altar-table, and could not understand (poor man) why he should not do so. We think it is satisfactory to find that the value of wooden ceilings, in regard to warming and acoustics, is being more generally recognised; nor are we disposed to quarrel with the judgment that such ceilings, when well treated, are often better and more suitable in effect than an open-timber roof. The misfortune at present is, that they are too often made the excuse for gaudy and tasteless displays of vulgar coloured decoration. The remarks upon monuments and memorial inscriptions are also well-judged and sensible. Among the minute directions for the furnishing of the sacristy and vestry, is a suggestion which we must not let slip: Mr. Micklethwaite has seen in Continental sacristies "two towels inscribed above, respectively, *ante Missam* and *post Missam*." This, he thinks, is "worthy of imitation," and we will endeavour to accept the hint with all becoming solemnity.

The chapters on Style, and on Architecture and the Function of the Architect, contain a good many remarks which are true and which may be new to some of Mr. Michlethwaite's readers, combined with a lamentable amount of overstrong language and abuse of everything that has been done by other architects. Some of this is so overdone, and in such excessively bad taste, that it must defeat its own object, and only be laughed at by most readers. How refreshing it is to meet with such a sentence as this,—"But if ever again we are to have a national style we shall not get it for squalling." What a dignified and truly literary manner of turning a sentence is this. Some one advised young clergymen to strike out of their sermons "all that they thought fine." If Mr. Micklethwaite wishes to make his book fit for the perusal of educated readers, he had better (if it comes to a second edition) strike out all that he thinks either forcible or funny; the result will be a considerable improvement in style, and a great reduction in bulk. Let us add, that when a member of a profession writes a book in which he constantly repeats language which, if it means anything, means that nearly all the members of his own profession, himself excepted, are foolish and incapable persons, the public may be apt to draw a rather opposite conclusion, which might be shortly expressed in a particularly homely and disagreeable old proverb.

On the whole, a certain number of the suggestions of a practical nature in this book are sensible, and some of them new. A good deal of the rest might have been spared, or put better and more succinctly; and the general value of the book will, no doubt, be variously estimated by those who do or who do not believe in the importance of all the subjects treated of. *Apropos* of which remark, we will close with a quotation from Mr. Micklethwaite's chapter on Clocks and Sundials. Speaking of the Mediæval taste for curious mechanical clocks, he says (p. 182), "Their revival is most strongly to be condemned. In mechanism the wonders of one age are the toys of the next. In the fourteenth century these clocks were the dedication to God of the highest mechanical skill of the time. Now, in the nineteenth, Chanticleer flapping his wings and cock-a-doodle-do-ing the hour, or the twelve apostles nodding their heads in procession, or Balaam's donkey jerking out at one door and in at the other, are inconsistent with the dignity of a church, and fit only to excite the wonderment of children in a travelling peepshow." We leave our readers to make their own application.

* Modern Parish Churches: their Plan, Design, and Furniture. By J. T. Micklethwaite, F.S.A., Architect. London: Henry S. King & Co.

## POSITION OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

THE annual general meeting of the Institute will be held on Monday evening next, to receive the report of the Council on the state of the property and affairs of the Institute. The proposition to raise the entrance fees and subscriptions of members of the Institute will necessarily be brought forward, but there is reason to believe will not be persisted in.

The report is an interesting document, as the following extracts will show:—

"The issue of this report will no doubt be regarded with peculiar interest by those for whose information it is published, when they remember that in the present year the Institute has reached the fortieth anniversary of its foundation. It was in January, 1834, that some of the principal architects in London held a friendly meeting 'to receive the outlines of a plan for forming an Architectural Institution similar to the Institution of Civil Engineers.' The scheme thus originated supplied a basis for the rules under which the Society was formed, and subsequently became incorporated by Royal Charter. Of its original members few now remain to witness the success of their early efforts, and to note the steady progress which the Institute is making in numbers, in influence, and professional position, but to those few the Council desire to convey, by way of preface to this report, an expression of gratitude for services which, ren-

dered more than a generation ago, have been followed by so substantial a result."

"The present financial condition of the Institute has been the subject of some comment, and notwithstanding the explanatory details published last year, of no little controversy.

It is obvious that, if in the course of three years a sum of 637*l.* was expended on objects which had hitherto been regarded as beyond the ordinary demands on our income (but which had met with the formal approval of the general body), a deficiency might be expected at the close of the fourth year. To meet this deficiency, the Council of 1873 proposed to apply 300*l.* of accumulated surplus income invested in 1869, and the general body gave full authority for the sale of 200*l.* more. The latter sum has not yet been sold out, but will probably be required, before long, to meet the only liability now remaining from last year, viz., the sum due to the library fund. The existence of this fund is due to the exertions of the Council who, some time ago, issued circulars reminding members of a bye-law which requires newly-elected fellows and associates to read a paper at the Institute, or to make a donation to the library or collection. This donation frequently took the form of money, so that by degrees a considerable sum was contributed, which the Council held in hand for the library, and duly credited to the library account, making grants from time to time for the purchase of works as required. Thus in 1872 a sum of 74*l.* was disbursed from the fund, and in 1873 a further sum of 73*l.* The amount still remaining in the hands of the Council is 190*l.**

A comparison of the balance-sheet for 1872 with that of 1873, will show that, while the ordinary expenses of the past year have been in several instances reduced, the subscriptions for the same period have increased by 59*l.*

In the face of these facts, the proposal made at the last special meeting to raise the rate of members' subscriptions, may occasion some surprise. The truth is, that an addition to the income of the Institute is required, not to cover ordinary expenditure, but to meet those occasional claims for substantial aid that have been from time to time made in behalf of external objects and schemes of professional interest, which, though possibly within the original scope of the Institute, and certainly not to be ignored in its present position, have not, until lately, been aimed at. Within the last few years the Institute has subscribed liberally to the artistic education of students, and incurred heavy expenses in connexion with the General Conference. Anticipating the possible recurrence of such claims, the council suggested a mode of raising the means to meet them, without at all desiring to press the suggestion, unless it should be cordially seconded by the general body of members. But for current expenses the present income of the Institute is sufficient, and it is only fair to add that those expenses have not increased out of due proportion to the increase of its income, its numbers, and the efficient organisation necessary for its work.

Before leaving the subject of finance, the Council desire to draw special attention to the munificent bequest of 1,000*l.* made by the late Sir William Tite, M.P., Past President of the Institute. This sum has now been invested in Consols, and the interest will be applied in accordance with the testator's wishes, 'to promote the study, in England, of Italian architecture.' A scheme for carrying out this intention has been already drafted by a committee appointed by the Council, and assisted by Mr. F. Ouvry, hon. solicitor to the Institute. After having been submitted for legal opinion it will be laid before Lady Tite for approval before publication."

"At the architectural examination held last year twenty candidates presented themselves. Of these, three passed in both sections of the proficiency class, one in the artistic, one in the scientific section, and twelve in the preliminary class, while Mr. H. H. Stannus received the first prize awarded to candidates, in accordance with the bequest of the late Mr. A. Ashpitel. The expense which the examination involves in fees to the examiners and moderators, printer's bills, &c., has hitherto been scarcely justified by the result, but the Council trust that as the examination is now definitely biennial, the number of candidates will increase sufficiently to make it self-supporting, in which case there can be no question as to the advisability of maintaining a scheme whereby the professional skill of an architect may, to a great extent, be tested, if not insured, at the outset of his career. And if in course of time that test should be accepted and recognised by the public, it is impossible to over-rate its influence in maintaining the educational standard and social status of the profession.

In accordance with a resolution passed at the last general conference of architects, in 1872, a similar gathering will be convened this year."

"The novel and somewhat suddenly-issued notice that in the ensuing Exhibition at the Royal Academy, preference of place would be given to those architectural drawings which were the actual handiwork of the exhibitors, has taken many members of the profession by surprise. However desirable it may seem to secure for such a purpose the autograph representation of an author's design, it may with reason be urged that the excellence of a design cannot always be measured by the skill with which it is transferred to paper. Nor can an architect, in full practice, be always expected to devote sufficient time to a work which, after all, only illustrates, and is not in itself a substantial specimen of the art which he follows.

Since the last report was issued, four examinations have been held at the Institute, under the Metropolitan Buildings Act of 1855. Thirteen candidates have presented themselves for examination, and ten, having satisfied the Board of Examiners as to their ability, have received from the Council certificates of competency to perform the duties of a district surveyor. The scrupulous care and strict impartiality with which these examinations have been conducted for a period of nearly twenty years, and the gratuitous labour which has been bestowed upon them, should render the Institute jealous of any attempt to withdraw from their corporate body a trust which has long been reposed in its executive, and which could scarcely be transferred from it without serious danger to professional interests. The Council are induced to offer these remarks by observing that in the Bill now before Parliament, and intended to supersede the Building Act of 1855, the official connexion of the Institute with the appointment of district surveyors is not recognised as it hitherto has been; and, having regard to the plenary powers proposed to be invested in the Board of Works, they can scarcely escape the inference that the services of the Institute in this particular are likely to be ignored.

The New Metropolitan Buildings and Management Bill of 1869 was not laid before Parliament until the advice of this Institute on the subject had been sought and rendered in the shape of a careful report, drawn up by a special committee, after a series of meetings. On the present occasion, copies of the proposed Bill have indeed been furnished to the Council, but so late in the day that the committee have had but little time for their labours. A report, however, including some important suggestions, has been drafted and forwarded to the proper quarter, where, it is hoped, it will meet with due consideration."

"Complaint has frequently been made as to the insufficient ventilation of the Institute meeting-room, and the deficiency of accommodation in the adjoining offices. The council are fully aware that there is ground for such complaint, but they fear that these evils could only be remedied by a partial remodelling of the premises now occupied by the Institute. Under these circumstances, the question naturally arises whether, if such a step were contemplated, it would not be preferable either to rent additional rooms in Conduit-street, or to seek more convenient quarters elsewhere. The real obstacle to either scheme is a financial one, not necessarily insurmountable, but one which would require careful consideration. It would be obviously undesirable to enter upon any arrangement, however necessary, which might involve an increase of annual expenditure; but it remains to be seen whether some plan could not be devised by which the Institute might obtain some return for the amount of outlay required.

Various schemes have been suggested, but up to this time not in a sufficiently definite form to enable the Council to discuss them. Among others, a proposition has been to effect such household arrangements at the Institute, as would enable it to assume to some extent the character of a club. This proposal is certainly deserving attention, but it presents material and obvious difficulties which must be met before it could be put into execution."

* The cost of recently-published Library Catalogues, amounting to about 80*l.*, has been defrayed out of ordinary income.

## ART-UNION OF LONDON.

THE thirty-eighth meeting of this Society was held on Tuesday last in the Royal Adelphi Theatre.

Professor Donaldson stated that Lord Houghton had been prevented by a domestic calamity from taking the chair; but that the duty would be performed by Mr. Godwin, F.R.S., whom the Council had had the great gratification of electing a vice-president.

Mr. Antrobus, hon. secretary, then read the following

### REPORT.

The Council have to report to the subscribers that the amount of subscription for the year just closed is 11,311*l.* 2*s.* 6*d.*, and they are happy to find that the plate of "Dutch Trawlers" has justified the anticipation of its popularity expressed in the report of last year.

The Council have, as usual, to return warm thanks to the local honorary secretaries and agents, both at home and abroad, for that co-operation which so largely conduces to the success of the Association.

On the present occasion they feel that an expression of recognition is especially due to Mr. Bailey, Birmingham; Mr. Farebrother, Clapham; Mr. Bannister, Grimsby; Mr. Hick, Wakefield; Mr. Hay, Japan; Mr. Brown, Sydney; Mr. Kennan, Hamilton; Messrs. Wilkie, Melbourne; Mr. Southam, Sandhurst; and Mr. Gleitier, Hartford, U.S.A.

The Council have availed themselves of the elevation to the Peerage, as Lord Emly, of the Right Honourable Wm. Monsell, M.P., to add his name to the list of Vice-Presidents. They have, at the same time, with the utmost cordiality, conferred the like honour on George Godwin, esq., who has well earned this mark of regard and respect from the Council and members. As one of the founders of our Institution, by his invaluable services as Honorary Secretary for many years, by his personal influence, by his rare judgment and writings, he has essentially contributed to the present important position of the Art-Union in the artistic world.

Since the last meeting the Council have been deprived by death of the valuable assistance of Sir William Bodkin, the late assistant-judge. Mr. Grissell also, from impaired health, is unable to attend.

To fill three of the vacancies thus caused, Thomas Lucas, esq.; J. A. Hallett, esq., formerly a member of the Council; and Aston Webb, esq., have been elected.

The following is a brief summary of the receipts and expenditure; a detailed account will, as usual, be printed in the report.

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| Amount of subscriptions ..... | | £11,311 | 2 6 |
| Allotted for prizes ..... | £6,154 0 0 | | |
| For print of the year, almanack, report, &c., and reserve ..... | 2,764 3 10 | | |
| | | 8,918 | 3 10 |
| Agents' commission and charges, advertisements, postage, &c..... | | 2,392 | 18 8 |
| | | £11,311 | 2 6 |

The accounts have been audited by the Finance Committee, and by Mr. C. J. Atkinson and Mr. W. A. F. Raynes, to whom thanks are due.

The reserve fund now amounts to 17,085*l.* 7*s.* 6*d.*

The Council desire to say a few words as to the Permanent or Reserved Fund. By the 33rd Bye-Law the Council are required to form a Permanent Fund, by means of a reserve of not more than 2½ per cent. on the amount of each annual subscription, of sums not expended by prizeholders, and of interest on the funds of the Society. The simple mode of proceeding, had such a course been practicable, would have been to retain in each year a certain portion of the subscriptions; to invest such portion in productive securities so as to accumulate, by way of compound interest, and to act in like manner with the other items forming part of the permanent fund; and had this course been pursued, and had the Council thought fit to exercise fully their power in this respect, the reserved fund would, at the present time, be of a larger amount; but such a course of proceeding was obviously impossible, regard being had to the necessities of the case.

It has been an unbroken practice, one which has met with universal approval, that in each year the subscribers should be presented with an original engraving, in addition to the chance of obtaining by lot a certain number of works of art, of various values. To carry out this scheme it is necessary to look forward, and make arrangements prospectively, for periods varying from five to ten years, during which periods large sums are expended in the purchase of copyright of pictures for engraving, in payments on account to engravers, in printing, and in other outlays necessary for the production of a first-class engraving every year. It will give some insight as to the magnitude and importance of these arrangements, when it is stated that the payments already made on account of prospective works, and liabilities incurred in relation thereto, amount to above 20,000*l.*

The Council had two courses before them,—either to borrow money at a high rate of interest, or to make use of the reserved fund. They adopted the latter course, employing it, in fact, in working out the purposes of the Society, and all the property and assets of the Association are liable to reinstate such fund, should it ever be necessary to realise the whole or any part of it for the purpose of purchasing or constructing a gallery. In the course of proceeding as before detailed, certain pictures have become the property of the Association, having been purchased, on economical grounds, for the purpose of engraving, and it is part of the duty of the Council to settle when and how their value shall be realised. It may be advisable to sell them, and thus ascertain their market value, or to fix a value on them and allot them as prizes, in lieu of a larger number of less valuable ones; in either case their value must go to the credit of the reserved fund. This is purely a matter of discretion, vested in the Council by the charter; it is also a matter for mature consideration as to the time when, and the mode in which the pictures, when they have fully served the purpose for which they were acquired, shall be disposed of. Should they be sold, the Council have reason to believe that their increase in value, since the time of their purchase, will prove that the course pursued has not been injudicious.

It is one of the leading duties of the Council to see that, in each year, the subscribers of that year obtain full value for their subscriptions, regard being had to all the circum-

stances of the case, and the Council hope it will be felt by the subscribers that this duty has not been unfulfilled by this operation.

The foregoing explanation may not, at first sight, appear to agree with the statement of the exact amount of the reserved fund given from time to time in the annual reports,—the amounts stated have been the accumulations of the 2½ per cent. annually reserved from the subscriptions, together with certain small additions annually accruing, and also with interest calculated at the low rate of 3 per cent. (and that only since the year 1857), on certain portions of the fund, from time to time advanced towards the general purposes of the Association. This mode of proceeding has been one very favourable to the annual subscribers, but it is not one that would be adopted were it necessary for practical purposes exactly to ascertain the amount of the reserved fund; a stricter mode of calculation, such as the one referred to in the outset, would bring the sum to a much higher amount; but, as the amount of the reserved fund is practically discretionary with the Council, they, in the interest of the subscribers, have been content to fix it at the sums heretofore advertised.

In the case of the picture by E. W. Cooke, esq., R.A., "Dutch Trawlers," engraved for distribution in the year just closed, the sum of 100*l.* for copyright has been charged to the engraving account of the year, and the picture will be made the chief prize in this distribution, the balance of the purchase-money being charged on the prize fund.

The amount to be expended on prizes will be thus allotted:—

| | | |
|---|---|---|
| 22 works at | £10 | each. |
| 22 „ | 15 | „ |
| 14 „ | 20 | „ |
| 12 „ | 25 | „ |
| 12 „ | 30 | „ |
| 10 „ | 35 | „ |
| 8 „ | 40 | „ |
| 8 „ | 45 | „ |
| 5 „ | 50 | „ |
| 4 „ | 60 | „ |
| 5 „ | 75 | „ |
| 3 „ | 100 | „ |
| 2 „ | 150 | „ |
| 1 work at | 200 | „ |
| 1 oil painting by E. W. Cooke, esq., R.A., "Dutch Trawlers," cost 420*l.* | | |

To these will be added:—

6 Bronze Statuettes, "Cimabûe."
20 Porcelain Statuettes, "Net-Mending."
150 Volumes of Etchings by the Etching Club.
50 Chromos of "Bellagio."
30 Statuettes, "Whittington."
275 Volumes of Landscapes after E. W. Cooke, R.A.
30 Silver Medals of Gibson, the sculptor.

These, with the prizes given to unsuccessful members of ten years' standing, will raise the total number of prizes to 940.

For the coming year your Council have had the confidence to prepare a work, the expense attending the production of which, to be given at the price of one guinea, could not have been borne by any association unsupported by the thousands which form the strength of the Art-Union of London.

The great wall-painting in the Palace of Westminster, representing the meeting of Wellington and Blucher after the battle of Waterloo, gave Mr. Maclise six years of incessant labour; its reproduction in the form of a magnificent plate, in the pure line manner, has occupied Mr. Stocks for five years, and the result is one of the most important and effective plates ever engraved, and the subject such as cannot fail to possess immense interest for every British subject.

Before proceeding to describe this work, it will be well to take this opportunity of setting at rest a question which caused some discussion at the time when the painting was completed.

It was stated in some of the journals of the day, that, in the supplementary despatches of the Duke of Wellington, he had distinctly stated that no such meeting between Prince Blucher and himself, as that depicted by Mr. Maclise, had ever taken place.

No such statement is to be found, but Mr. Maclise was so anxious that his labour should not be bestowed on the embodiment of an incident that never occurred, that, through the instrumentality of Sir Charles Eastlake, her Majesty the Queen was induced to order inquiries to be made at the Court of Prussia, through the Crown Princess, our own Princess Royal, in order to obtain authentic information on the above-named subject.

In the Rev. G. R. Gleig's "Story of the Battle of Waterloo," in describing the battle of Ligny, which was gained by the French over the Prussians, on the 16th June, two days before Waterloo, he relates how Prince Blucher's horse, being wounded by a musket-shot, fell with him and half-buried him under its weight. Count von Nostitz, the aide-de-camp riding by his side, leapt from his saddle, and, drawing his sword, placed himself over the body of his fallen commander; and, fortunately, the French horsemen, intent on overtaking a mass of troops flying before them, rushed past without paying any heed to the two, and being subsequently driven back by the Prussians at that point, Prince Blucher was raised by his own men and borne to a place of safety.

It was this Count von Nostitz to whom application was made for information as to the fact of the meeting having occurred, and here is what he says:—

"Having had the honour of being the personal aide-de-camp of Prince Blucher throughout the campaigns of 1813, 1814, and 1815, and having been constantly at his side during those years at every important moment, I can answer the inquiry addressed to me respecting the meeting of the Duke of Wellington and Prince Blucher at the Belle Alliance, on the evening of the 18th June, most positively; that this meeting really took place; that the two generals congratulated each other on the brilliant victory jointly won by them, and concerted measures for the pursuit of the enemy during the night. I shall be very happy if this declaration of mine shall tend to remove doubts, for which, after the account given by the generals themselves of this historical fact, there has never been any justification.

(Signed) GRAF VON NOSTITZ."

In the preparation of this great work, Mr. Maclise displayed, in a prominent degree, that laborious and fastidious care which he always bestowed in order to render his pictures *true*. The Council are in possession of a portfolio, purchased at the sale of his effects, containing an infinite number of sketches of arms, accoutrements, guns, musical instruments, and the uniforms worn by the soldiers of that day. The acquisition of many of these was a work of great difficulty, in consequence of the destruction of a vast quantity of such materials contained in the grand storehouse, destroyed in the disastrous fire in the Tower of London in the year 1841.

This wall-painting in the Royal Gallery, as well as the one facing it of the Death of Nelson, is 45 ft. long by 12 ft. high. It was painted in tempera, and then impregnated with water-glass, in the way introduced by Kaulbach, and unfortunately, in consequence of some error in the preparation of this liquid, or some other cause, a kind of efflorescence or mist, has begun to appear in some parts of the work, obscuring the colour.

In the centre of the composition the Duke of Wellington, mounted on his horse Copenhagen, grasps the hand of Prince Blucher, whose keen glance and grim and eager face show sternly under his Prussian foraging cap. He is just on the point of moving off, as it was arranged that the pursuit of the flying enemy should be taken up by the Prussians, while the tired British troops rested on the field of battle.

Along the back of the picture are the British cavalry pursuing the artillery and wagon-train down a steep bank. In the centre the village inn, "La Belle Alliance," is skilfully used as a background to throw up the principal group. On either side of the two Generals are clustered the staffs of each. Just behind the Duke are General Somerset and Lord Arthur Hill, and between them is seen the face of the Honourable Henry Percy, who took home the Duke's despatches and the captured eagles. Not many officers are there of note, since most had been put *hors de combat* on that dreadful day.

Beyond this group a Fusileer and a Highlander are carrying off the body of the "young gallant Howard," mentioned by Lord Byron; he was killed near the close of the battle, leaving a young widow and an unborn child.

Near the centre, in front, three wounded Life-Guards brandish their swords and cheer. At the extreme right of the picture the wounded white horse of a Cuirassier is striving to rise from under his rider's body, which lies partly on another horse, whose limbs are stiffening in death. On a gun above these lies a wounded Hanoverian, to whose lips a priest holds a crucifix, and a *vivandière* offers a glass of water from her barrel. Close to her is a knapsack filled with crosses and orders taken from the slain, with which her infant is amusing itself.

Immediately on Blucher's left is his staff—Gneisenau, to whom the command of the pursuit was given, Von Nostitz, Bulow, and others. Nearer to the front is Sir Hussey Vivian, mounted on a magnificent white horse, which is a very important point in the composition, as forming a bright and telling centre in that portion of the picture.

In the front in this part is a Highland piper lying dead; just fallen from his outstretched fingers are the pipes which he will never blow again, and his basket-hilted claymore. Below lies an English colour-sergeant, wounded in the leg, and being attended by the surgeon.

One of the most remarkable merits in this work is the admirable grouping of the horses, and the skilful variety of their form and action. Blucher's horse seems full of fire and eager to dash off, contrasting with the subdued air and quiet dignity of Copenhagen. The black horses of the English Guards form a fine contrast with the lighter coloured animals ridden by Blucher's men.

In all directions along the foreground of the picture are broken swords, muskets, and various musical instruments, cannon-balls embedded in the ground, and the remains of shattered gun-carriages and equipments.

The plate engraved from this picture is no less excellent in its own department than the original. The skilful laying in of the lines, the bold and smooth sweep of the graver, producing a roundness and solidity of effect, a most striking contrast of light and shade, which leave nothing to be desired. The Council have every reason to believe that this truly national work, commemorating one of the greatest triumphs of British arms, a work which every subscriber will feel proud of having on his wall, will induce a very large subscription for the coming year. To do justice to this important work the Council did not hesitate in paying the engraver the large sum of 3,150*l.*

In reference to the art-education of the country at this time, there is much ground for satisfaction in contemplating the continual increase in the number of pupils attending the several Art-Schools. The number of young men, who, confined closely at business during the day, yet give themselves up to study in some art-school in the evening, is very considerable, and though amongst so large a population as ours the growth and spread of a love and appreciation of art are, of necessity, slow, yet it must be allowed that we are not now open to that reproach for the great interval which divided England from the Schools of Continental Europe, in the matter of artistic excellence, some twenty years ago. We are more taking to heart the fact that man has something more to do than to earn his livelihood; that he has a social as well as a material life to lead; and moreover that, even in earning that livelihood, the capacity of workers would be largely increased by the development of those higher tastes and talents which the cultivation effected in our schools of art is calculated to produce.

It is undeniable that the general character of a large part of the designs of articles in use in every household is continually and rapidly changing, and that though many things may be of cheap or common material, they are good in form and colour, and, at least, not absolutely unsightly.

Amongst the causes which have led to this demand for an improved character in such works, the Council feel that the Art-Union of London may claim a share, and a large amount of merit must be conceded to the South Kensington Museum and the Schools in connexion with it. No candid person will question the very great benefit which this Institution has conferred on the country, and when some months since it was announced that the Government had it in contemplation to transfer its management to the Trustees of the British Museum, a loud and angry protest went out from many of the leading journals of the day.

It is impossible to deny that at South Kensington the one ruling desire is to attract and interest the public, the circumstance alone that the building is open in the evening, and thus conduces to the delight and advantage of thousands whose avocations prevent their visiting it in the daytime, is an immense advantage.

Whenever an opportunity occurs of helping forward the art-education of the people your Council are always ready to seize it, and with this view they offered, last autumn, two premiums of 35*l.* and 15*l.*, to be competed for by students of painting in pottery. The subject proposed was the ornamentation of a tazza, of a given size and form, the manner and mode of treatment being left entirely to the discretion of the artists.

The designs are to be sent in next month, and the Council look forward to the production of works affording ample proof of the high state of excellence to which our art students have attained, and which may supply graceful and attractive objects for the adornment of our houses, when distributed as prizes in future years.

This mention leads the Council to advert to the continued advance manifested in the quality of the works selected by the prizeholders, and, even at the expense of repetition, they cannot refrain from urging those who may be successful to-day to endeavour to improve on the selections of foregoing years.

LEWIS POCOCK, EDMD. E. ANTROBUS, } Hon. Secs.

The Chairman, in moving the adoption of the report, expressed sincere condolence with Lord Houghton in his affliction, remarking that he was no mere fair-weather president, but always ready with his aid whenever needed. Mr. Godwin then went on to say that one great satisfaction which he derived from being "raised from the ranks" in the Council was that it unlocked his lips, and enabled him to bear testimony to the large amount of labour and constant supervision bestowed by the Council week after week, and year after year, on the affairs of the Society, and that, too, without a shadow of emolument of any kind,—or even of patronage,—which they had taken an opportunity of declining when, some years since, the Government wished to place the selection of prizes in the hands of the Council. This would, no doubt, have had the immediate effect of conferring on the Council a large amount of patronage as regards artists, but the result would have certainly been the destruction of the Society by taking from the prizeholders the right of selection. While speaking of personal efforts, he would take the opportunity to commend the continued exertions of the assistant secretary, Mr. T. S. Watson, and to thank Mr. John Hopgood, their honorary solicitor. The chairman went on to say he had often had the occasion to refer to the establishment of the Society with its 200 or 300 members, years ago, when with Mr. Pocock and Mr. Hayward, whom he was happy still to see by his side, they rocked the cradle of this now well-established Society, and saw it at last culminate in a list of 17,000 or 18,000 subscribers, and finally settle down to a steady annual income of 11,000*l.* or 12,000*l.* He pointed out how great had been the advantages it conferred on art and artists, and called attention to the evidence of its wide-spread action, suggested by two lines of the report, which gave thanks for the exertions of Mr. Farebrother, of Clapham, and Mr. Hay, of Japan. In all parts of the world, where the English language was spoken, the Association had a secretary, and its prints and prizes were distributed, binding together distant communities in a good object. The kingdom of art had no boundaries:—

"In war renown'd, in peace sublime,
Art moves in greatness and in grace;
His power, subduing space and time,
Links realm to realm, and race to race."

He was glad to say that there were symptoms of an awakening from that apathy as regards the encouragement of art, which had so long characterised both the central and provincial municipalities of the country. The Government ought to feel that money spent in providing fine works for public enjoyment, instruction, and refinement is spent profitably.

Professor Donaldson in seconding the adoption of the report, adverted to the importance of the evidence adduced by the letter of Count von Nostitz as to the meeting of Wellington and Blucher, and commented on the importance of the plate produced.

Mr. Bennoch, F.S.A., moved a vote of thanks to the Honorary Secretaries, and dilated on the amount of labour bestowed by them on the conduct of the Society. He stated that several members of the Royal Academy had declared the engraving by Mr. Stocks to be the finest of its kind ever exhibited on their walls. He said that if every member of the Art-Union would constitute himself an agent to canvass for subscriptions for this magnificent plate, the subscription next year would be nearer 30,000*l.* than 12,000*l.*

Mr. Butterworth, F.S.A., seconded the vote of thanks to the Honorary Secretaries; and after the usual compliments to Mr. Chatterton and Mr. Churchill in regard to the use of the theatre, and to the ladies about to draw the prizes, and to the Scrutineers, proposed by Mr. Troughton, and seconded by Mr. P. Graham, the drawing was proceeded with. The following is a list of the principal prizes:—

*An Oil Painting, "Dutch Trawlers," by E. W. Cooke, Esq., R.A.* (cost 420*l.*).—Hume, R., Arbutus-lodge, Blackrock-road, Cork.

200*l.*—Proctor, T., Bristol.

150*l.*—Bryans, J. L., Oxford; Tatham, E., Moorgate-Wharf.

100*l.*—Cheek, J., Great Northern Railway; Surrey, S. A., Newbury; Williams, S., Bedford-row.
75*l.*—Edwards, W., Clerkenwell; Jones, T. D., Maidstone; Main, R., Port Adelaide; Price, Mrs. J., New Brunswick; Stühlen, P., Deutz.
60*l.*—Diprose, J. J., Kennington-park-road; Grote, A., per King & Co.; Roumieu, R. L., Lancaster-place; Yong, L. M., Highgate.
50*l.*—Kingsbury, W., Stock Exchange; Sibthorpe, Jno., Dublin; Addison, W., Stock Exchange; Talfor, R., 51, Margaret-street; Appleyard, J., Middlesbrough.
45*l.*—Ball, Mrs., Forest Hill; Crossman, Mrs., Camden-square; Frith, C., Ealing; Harris, Geo., Shepherd's-bush; Hoe, B., Leadenhall-street; Sewell, E., Melbourne; Wilson, O., Cardington-street.
40*l.*—Barber, J. J., South Shields; Bastard, J., Clare, South Australia; Dearsley, H., Billingsgate; Hammond, A. O., Greenwich; Miller, A., Sittingbourne; Peak, H., Guildford; Phillips, C., Stamford; Watson, C. M., Ballaarat; Worrell, J. E., Snapper-point.
35*l.*—Almeida, Compos, Oporto; Armstrong, J., Mossel Bay; Blackett, W. R., Bexley; Cooke, C., Mecklenburg-square; Embeck, F. E., Williamsford; Gadsby, Jno., Bishop's Stortford; Henniker, Mrs., Leinster-square; Wiengel, A., Bordeaux; Randall, L. D., Merton; Wise, Mrs., Royal Academy.
30*l.*—Adams, Samuel, Ware; Griffin, G., Manchester; Griggs, J., Loughborough; Horn, T., 56, Beaborough-street; Jackson, H., Milton; Jones, J. A., San Francisco; Phillips, Miss, 120, Well-street, E.; Rodda, R., Moonta; Rigby, C. P., Halifax; Spain, J., Haverstock-hill; Timms, T., Warwick; Woodcock, W., Brixton.
25*l.*—Alcock, S., jun., Sanderland; Blurton, T. R., Booksellers-row; Boyer, G., Newbury; Brind, H., Ballaarat; Burke, E. H., Acton; Catling, J., Cherry Hinton; Harris, J. D., Leicester; Hunt, W., Chingford; Macnamara, D., per King & Co.; Maycock, C. J., Manchester; Montague, J. P. M., Bridport; Newcomb, R., Derby.
20*l.*—Edwards, T., Merthyr; Guest, W. C., George, Cape of Good Hope; Harley, R. P. P., Hartleypool; Hayes, Dr., Trentham; Kitchen, J. P., Stock Exchange; Longson, E. C., Adelaide; Moore, F., 180, Strand; Nicholson, W., Sunderland; Noble, H. B. (per Huth & Co.); Richards, E., Wednesbury; Shepard, J. T., New York; Spittle, Thos., Newport, Monmouth; Taylor, G. B., Oldham; Woods, W., Canonbury.
15*l.*—Baker, E. J., Dalston; Bartlett, —, Plymouth; Bozel, F., Osaka; Brooke, E. B., Hartford, United States; Brown, James, Belgrave-road; Bushell, F., Compton House; Cane, F., South Lambeth; Eager, G., Sydney; Foley, Rev. J., Wadhurst; Frith, J., Fen Court; Hills, Benjamin, Deptford; Jones, C., 13, Kenton-street; Kirkham, F., Lynn; Kiss, George, Birmingham; Matthews, C. H., Hurstpierpoint; Morris, W., Ross; Parker, R. D., Cork; Pottar, R., Middlesbrough; Smith, Martha, Goolwar; Taylor, J., Newcastle-on-Tyne; Warden, D., Sydney; Wilson, J., Manchester-square.
10*l.*—Bear, T. D., Notting-hill; Bird, W. B., Alton; Bonsor, F. G., Whitehall-place; Bowen, J., Kilburn; Burgess, T., Freemantle; Burnham, J. B., Hartford, U.S.; De Broke, Lady Willoughby, Kineton; D. Smidt, W., Cape Town; Greenwell, T., Darlington; Herring, F., 537, Old Kent-road; Jameson, W., Christchurch, N.Z.; Ivens, T. F., Kidderminster; Lawson, J. N., Ryehope; Loveys, A. N., Watling-street; May, W. H., Mounts; Merratt, G., Hackney; Mills, W., Ottawa; Panton, J., Horncastle; Port, C. T., Adelaide-road, N.W.; Scheiller, A., Crefeld; Shand, A., Liverpool; Sharp, J., Weston-super-Mare.

*A Bronze Statuette, "Cimabüe."*—Baker, W. W. 17, King-street; Brocklehurst, G. W., Liverpool; Evans, T., Merthyr; Hope, J., Clare, S.A.; Whittle, T., Croydon; Yates, T. G., New-cross.

*A Porcelain Statuette, "Net-Mending."*—Annan, J., Lancaster; Black, J., Twickenham; Blunden, S., Queenstown; Barclay, G., Farringdon-street; Basing, J., Newbury; De Adeline, Lisbon; Falkner, E. S., Newark; Finlayson, J. H. Adelaide; Fox, Mrs., Stoke Newington; Hodges, H. H., Maidenhead; Lloyd, H., Leamington; Long, W., Tulse-hill; Orris, Mrs., Norwich; Piggot, J., Maldon; T. G., Kentish-town; Robinson, D., Uxbridge; Sugden, S., Aldermanbury; Talbot, G., Leeds; Underhill, W. L., Thirsk; Venn, W. W., Tottenham.

*A Terra-cotta Statuette, "Whittington."*—Adams, J., Southampton; Angus, R. R., Montreal; Anty, J. W., Driffield; Baxter & Bartlett, Herne-hill; Browne, R. J., Newry; Brown, Thos. P., Sydney; Carr, A., Goodge-street; Casson, Capt., Harrogate; Clark, E., Stock Exchange; D. H. G. (per Messrs. Dolman, Greenwich); Godding, W. W., Taunton; Grant, Lieut.-Col. (per King & Co.); Green, J., Cheltenham; Hollon, R. W., York; Jenkins, H. W., Christ Church; Johnson, E., Cambridge; Lyle, J., Halifax, N.S.; Miss, M., Lancaster-gate; M'Ewen, Jas., Edinburgh; Needham, F., Rugby; Petty, J. W., Leeds; Poulter, T., Arthur-street, Walworth; Ratcliffe, W. P., Alma-town; Rawle, J. S., Nottingham; Reading, J., Toddington; Rogers, J. C., Moor Cross; Smith, Jas., Ballaarat; Warren, J., Royston; Wilkinson, C. E., Morpeth; Woods, A. T., Belfast, Virginia.

*A Silver Gibson Medallion.*—Abbott, D., San Francisco; Barclay, R., Farringdon-street; Basado, F., Tacna; Brennan, J., Maidstone; Cleminson, R., Stoke-on-Trent; Clifton, —, Winchester; Cotton, H. R., Long-acre; Cox, T. H., Peckham; Dolby, J., Bramley; Driver, R. C., Whitehall; Duckett, J., Margate; Freeman, Miss, St. Ann's-hill; Hawkins, C. H., Portland-place; Mercer, K., Deal; Miller, G. W., Admiralty; Moss, G. W., Greymouth; Nash, C., Bayswater; Pawsey, I. T., Ballaarat; Powell, E., Fore-street; Randall, G., Williamstown; Richards, J. B., Hamilton, Canada; Steele, J., Croydon; Stevens, E. C. J., Christchurch, N.Z.; Stockdale, G., Notting-hill; Thornton, B. J., Lynn; Turnbull, Dr. J., Christchurch, N.Z.; Verrey, W., Hackney; Voltz, G., Beckenham; Walch, W., Chorley; White, Rev. J., Plumstead.

A vote of thanks to the Chairman terminated the proceedings.

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**Action of Water upon Zinc.**—At a recent meeting of the Glasgow Philosophical Society, Mr. James R. Napier read a paper "On the Effect of Loch Katrine Water on Galvanised Iron." This water is remarkable for its purity, and acts very speedily upon the zinc covering the galvanised iron: hence zinc cisterns, also, it was shown, are, for such waters, dangerous.

## CRYSTAL PALACE SCHOOL OF PRACTICAL ENGINEERING.

On Saturday last, the fourth term of this prosperous and useful school was brought to a close by the presentation to the successful students of the certificates awarded to them by the Examiners, who, in this instance, were Mr. W. Lawford, C.E., and Mr. R. C. May, C.E.

The certificates are awarded under four heads,—first, for answers to lecture questions, for which all the students are eligible to compete; and for the three divisions of (1), work in the drawing-office; (2), in the pattern-shop; and (3), in the fitting-shop. Students who obtain double certificates must have one for lecture examination, and the other from one or other of the three divisions in which they may have been occupied during the term. Sixteen of the students obtained double certificates.

Twenty-four students obtained a sufficient number of marks for lecture questions to make them eligible for the special examination, "On Steam." Of the 24 there were 17 awarded certificates. The highest number of marks attainable is 224. The highest number attained was 198, by Mr. W. Michels, who had also a certificate as first in merit in the fitting-shop; Mr. P. W. Britton had 193 marks, and a certificate as second in merit in the fitting-shop. The marks of other students for lecture examination ranged from 184 to 92. In addition to the two students named, double certificates were awarded for lectures, and for drawing, pattern-making, or fitting, to the following:—Messrs. E. Smith, G. Harris, F. E. Tompson, A. Wortham, H. C. Dent, W. H. B. Green, C. S. Smith, E. Green, F. Maurice, A. Laubergne, J. T. Rickford, A. H. Wilson, A. H. Turner, and G. D. Marston.

Mr. E. W. Rees had a certificate for lecture examination; for drawing, Mr. L. K. Kinder was first, Mr. M. Harding second; and Messrs. G. Mayhew, C. J. Swears, R. J. Glanville, W. K. Fisher, C. F. Townsend, and H. C. Cummins, had each a certificate. For pattern-making, Messrs. A. Needham, R. de Jaurequi, and H. S. Fitzgerald. In addition to six students who had certificates for work in the fitting-shop, as well as for lecture examination, Messrs. E. W. W. Waite and C. E. Merriman were also awarded certificates for work in the fitting-shop. Mr. J. H. Frogley was awarded a certificate for surveying, levelling, and Parliamentary work, in civil engineering. This department has been added to those that were prosecuted last year, and as the directors of the Palace provided the best descriptions of machine and other tools and fittings for the shops furnished at the opening of the school, so have they provided "dumpy" level, theodolite, pocket sextants, scales, chain, and all necessary instruments and apparatus of the best kinds for surveying and levelling. The work that has been done in this department by student Frogley, under Mr. Wilson's direction, consists of detailed survey, levelling, plans and sections, such as would be required by the Standing Orders of Parliament for a railway or new dock. The survey is for a supposed line of 66 chains in length in the lower grounds of the Crystal Palace, and the drawings and estimates include also the conversion of one of the irregularly-shaped ponds into a dock. The undulating ground brings into requisition,—albeit all of small dimensions,—examples of tunnel, cuttings, embankments, viaducts, and bridges, and affords very useful practice for a young engineer, in such able hands as those of Mr. Wilson, the principal of the school.

The work in the fitting-shop included a three-horse power horizontal engine; the second that they have made that is entirely the work of the students, and is already sold, we believe. The other work in the fitting and pattern shops, included parts of engines, plunger-pumps, crabs, core-boxes, valves, model of Gifford's injector, &c. In the drawing-office there are complete sets of drawings, with specifications and estimates attached, for a 96-horse power engine, pumps, crabs, a 40-ft. span wrought-iron roof, with weights and lengths of king-post, ties, rafters, braces, &c., all marked; drawings for piers, and others relating to structures; the special attention of the students being directed to the important points of preparing estimates and taking out quantities.

The certificates were presented to the students by Mr. C. W. Siemans, F.R.S., who congratulated the directors and their officers, and the students, upon the success of the School of Engineering, and insisted upon the importance of the students mastering principles of construction, as of much greater importance than knowledge of practical details, although such knowledge had also its value. They would all be wise enough, he hoped, to discard entirely dependence upon the "rule of thumb,"—a rule that belonged to the past. He would watch the progress of the school with great interest.

Mr. Shenton, superintendent of the Company's Science and Art Department, read the Examiners' report, and the proceedings closed with votes of thanks to Dr. Siemans and the Examiners, proposed in short addresses by Mr. Wilson and Mr. T. Hughes, chairman of the Crystal Palace Company, and briefly responded to by Mr. May and the chairman.

At the close of 1873, there were 27 pupils attending the school; at the close of the first term of 1874, the number is 38, and it is already known that there will be a considerable increase in the second term of the current year.

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## METROPOLITAN BUILDINGS BILL.

Colonel Hogg moved the second reading of this Bill on Wednesday, and in the course of his speech withdrew some of the objectionable clauses.

Petitions were presented by Mr. Beresford Hope, from the Royal Institute of British Architects, under its corporate seal, against certain provisions of the Bill, especially those relating to the appointment of district surveyors; also by Mr. Samuda, from the Millwall Dock Company, against the Bill, praying that the said Bill be referred to a Select Committee, and that they may be heard by counsel before the said committee; also from the East and West India Dock Company, to the same effect.

After discussion on Col. Hogg's motion, the Bill was read a second time, and referred to a Select Committee, all who are affected by the Bill to have the opportunity of appearing by counsel before the committee.

The committee will not meet for a fortnight, so that next week will be time enough to resume the subject.

The objections we early expressed have been generally endorsed.

The district surveyors have examined the Bill, and printed a report upon it.

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## A MANSION-HOUSE FOR BRISTOL.

Mr. Alderman Proctor has supplied a want in Bristol which has existed since the Mansion-house in Queen-square was burnt by the rioters in October, 1831,—an official residence for the chief magistrate of the city. It was announced by the Town Clerk (Mr. D. Burges) at a meeting of the Town Council on Tuesday afternoon, that the alderman proposed to make a gift of Elmdale, Clifton Down, to the Corporation of Bristol, to be appropriated to the use of the Mayor of the city during his year of office and for the entertainment of the Judges during the Assizes, instead of their being compelled, as at present, to go to hotels. The house was erected from the designs of Messrs. G. & H. Godwin, and it is stated that Mr. Proctor had this object in view at the time, although his architects were not aware of it.* Mr. Proctor having been requested on several occasions to assume the office of Mayor, his intention was, if his health had permitted him to undertake the office, to have handed over the residence as a mansion for his successor when his year of office expired. The state of his health did not warrant him in the hope of his ever being able to aspire to the mayoralty, and therefore he had determined to present the mansion to the city at once. Mrs. Proctor joined heartily in the generous action of her husband, and was desirous that the gift should be formally made on Friday, the 1st of May, the anniversary of their wedding-day. Mr. Proctor further intimated his intention to leave the house in perfect order, and hoped that everything might be done to render it fit for occupation by the Mayor to be elected in November next. The net value of the gift was stated to be something like 15,000*l.* The house is subject to a ground-rent of 50*l.* per annum, which Mr. Proctor proposes to redeem. The generosity of Mr. Proctor was highly eulogised by several members of the Town Council,

* A view and plans of the house will be found in an earlier volume of the *Builder*.

and it was suggested that portraits of the worthy alderman and his wife should be placed in the new mansion-house.

It may be mentioned, as a coincidence, that at the moment when his munificent offer was being made to the Town Council, Mr. Godwin, as chairman of the Art-Union meeting in London, had to declare Mr. Proctor the gainer of the 200*l.* prize.

## BRITISH ARCHÆOLOGICAL ASSOCIATION.

AT the council meeting, April 22nd, Mr. G. R. Wright, F.S.A., in the chair, the balloting-list of the officers and council for the ensuing year was read and approved, and an announcement made from the chair, that Mr. Kirkman D. Hodgson, M.P., late governor of the Bank of England, would preside at the thirty-first annual congress of the Association, to be holden at Bristol, from the 4th to the 10th of August next, succeeding to his Grace the Duke of Norfolk, Earl Marshal of England, as president for the year. It was also announced that the services of Mr. John Reynolds, of the Manor House, Redland, had been given for the forthcoming congress as honorary local secretary, and that an invitation from the Mayor and Corporation of the county and city of Bristol had been received.

At the evening meeting, the Rev. S. M. Mayhew, M.A., F.S.A., in the chair, interesting exhibitions of early English and later Dutch pottery, with some choice specimens of Venetian glass, were made by Messrs. E. Roberts, Bailey, and Mayhew, and afterwards a paper read by Mr. H. Syer Cuming, F.S.A. Scot., "On the Origin of and Causes which led to the Nine of Diamonds being called the Curse of Scotland." This subject, which was ably illustrated by quaint references and much historical research, was fully commented on by the chairman, Messrs. S. J. Tucker, Rouge Croix, R. N. Philippe, D.C.L., E. Roberts, F.S.A., and others. The evening was brought to a close by the reading of a paper by Mr. E. P. Loftus Brock, "On the discovery of an Ancient Interment, British or otherwise, near Beddington Park, Surrey," and the meeting stood adjourned until Wednesday, May 13th, when the annual general meeting of the Association will be held, at four p.m.

## THE NEW BUILDINGS FOR THE "TIMES."

THE handsome and substantial new buildings which have for some time been in course of erection in Queen Victoria-street for the *Times* newspaper are now so far completed as to admit of their being opened for business on Monday next. This lofty pile, which has been erected not only for the publication and general business of the *Times*, but also for the manufacture of the now celebrated "Walter" printing-machine, may be designated as an exceptionally prominent architectural feature in Queen Victoria-street. The main elevation in Queen Victoria-street is about 60 ft. in length, and upwards of 60 ft. in height from the street level, the central portion, which is surmounted by a bold and massive carved pediment in stone, being carried to a height of nearly 80 ft. The building has a deep and spacious basement, containing one large workshop, extending over the entire ground area. This part of the building is 16 ft. in height from the floor to the ceiling, and is exclusively set apart for the manufacture of the "Walter" machine. The building, in addition to the basement, contains the ground floor, which is lofty, and four stories above. The materials used are red wire-cut brick, with yellow brick dressings, all of which were manufactured from the clay on Mr. Walter's estate, at Bearwood, in Berkshire. Each story contains a range of nine windows, which are segment-headed. The entrance is at the west angle of the building, and is an ornamental feature. It is upwards of 7 ft. in width, and very lofty. It is in carved stone, and circular in form, the arched heading being supported on each side by massive polished granite columns, and bold stone cantilevers. The façade is surmounted by a projecting stone cornice, 4 ft. in height, and above this, in the central portion of the elevation, and extending across nearly two-thirds of the entire frontage, rises the pediment already mentioned. The carving on the face of the pediment is a reproduction of the motto which has long daily appeared in the *Times*. In the centre a huge block of stone represents an open book, with the words "The Times," inscribed in large black letters; on one side is another open book also carved in stone, having on it the inscription "Times Past," and surrounded by a profusion of oak-leaves in full foliage, and bunches of acorns, the foliage of the oak-leaves obscuring some portions of the book of "Times Past." On the other side is a third book closed, on which is inscribed "Future." In the central portion of the upper part of the pediment, over the carving just described, is a large and ornamental clock. The whole of the building, both externally and internally, has been erected in an exceptionally substantial manner for its intended purpose. In addition to the Queen Victoria-street main elevation, the building has another frontage in Printing-house-square, and the east side of the quadrangle in the square is about to be rebuilt, uniform with the structure which has just been completed.

The architect from whose designs the building has been erected is Mr. Deacon, the builders being the proprietors of the *Times* themselves, and Mr. Teague is the Clerk of the Works.

## EXTREME PRICE OF GAS.

A NUMEROUSLY attended meeting was held [in Bermondsey on Tuesday night, to consider the question of the price of gas. After several speakers had denounced the exorbitant charges of the companies, a letter was received from Mr. Beresford, M.P., who urged that the gas and water companies should be bought up in the public interest.

Meetings have been held in various other places, and much indignation is everywhere expressed.

In America similar discontent prevails on the subject. We find some lines in one of the journals there, ending thus vehemently:—

"And all your lying meters,
Those never-failing cheaters,
Will lie in vain to save you
From a flood of public scorn;
A general indignation
Will make you rue the day, man,
That ever you were born!

Gas man! Gas man!
It will come to pass, man,
If you don't repent,
And cease to plunder honest men,
That down where Satan revels,
With his twenty million devils,
You'll furnish endless light, and get
No money back again!"

## THE MANUFACTURE OF FIRECLAY GOODS.

MANUFACTURES in fire-clay, comprising, as they do, many articles other than those which must necessarily possess fire-resisting properties, are rising in importance to an extent not generally recognised; some idea of which may be formed from the fact of fireclay goods being used for the lining of furnaces and domestic fireplaces, the drainage of towns, and the ornamentation of public buildings.

Fireclay is found in various parts of Great Britain; the most noted seams occurring at Dinas, in Wales; Kilmarnock and Glenboig, in Scotland; and Stourbridge, Plympton, Newcastle, Burton-on-Trent, Poole, Hedgerley, and Wortley, in England. The celebrated Dinas rock, when made into bricks, is almost pure silica; but generally the proportions are 59 to 84 per cent. of silica, 36 to 8 per cent. of alumina, with small quantities of peroxide of iron, lime, magnesia, potash, and soda. Generally speaking, the more the first and less the five last-named substances preponderate, the greater will be the value of the clay they compose.

The occurrence of fireclay, and the strata with which it is associated, vary in almost every case; it is usually found in the coal-measures immediately underneath the coal; and, as space precludes, and similar conditions render unnecessary a description of its position and mode of working in every locality, a brief account of what is done in the Wortley district (near Leeds) will be given as sufficient for the purposes of this article.

In a district, remarkable from a geological point of view, broken up by faults in the strata into areas; separated, as far as the mining engineer is concerned, although continuous to the farmer; averaging rarely as much as 100 acres each, occurs a seam of coal from 8 in. to 18 in. thick, and from 10 yards to 120 yards below the surface, known as the "Better Bed," and remarkable for its freedom from sulphur, and consequent value for iron smelting. Underneath this bed of coal occurs a siliceous rock of bluish-grey colour, containing impressions of plants, sigillaria, &c. When the depth is not more than about 80 yards below the surface, it is of a shaly nature, and falls to pieces after being exposed to the atmosphere, and is the fireclay proper; but, as the depth increases, this rock becomes more of a stony nature, and unfit for manufacturing purposes. [The word "rock" is used in its geological sense, meaning any layer of material, soft or stony.] The thickness of the fireclay is about 2 ft., and it is obtained along with, and in a similar manner to, the coal.

The clay being raised to the surface and conveyed to the works, the process of manufacture commences by (1) grinding, separating, and mixing; (2) moulding and drying; and (3) burning and (when required) glazing. The clay being "weathered," or disintegrated by atmospheric action, it is thrown into a flat-bottomed circular revolving pan, about 9 ft. diameter, having two stationary rollers about 5 ft. diameter, 15 in. wide, and each 2½ or 3 tons weight; by these the clay is crushed to a powder sufficiently fine to pass through gratings, ¼ in. wide, in the pan bottom. After leaving the pan, the clay—now in a state of somewhat dry powder—is raised by an elevator, consisting of sheet-iron cans attached to an endless band, to the top of a series of screens varying in degree of fineness, by which the clay is separated accordingly; and any coarse lumps that will not pass the screens are returned to the grinding-pan.

The men who work near the screens have to breathe an atmosphere in which fine dust floats to an unpleasant extent. A plan is about to be tried at one of the principal works in the Leeds district to separate the clay by a fan in a long chamber, the air being filtered by having to escape through sheets of canvas at the end opposite to which the fan is placed: if this succeeds, the finest dust—which is the most valuable—will be available for the best class of ornamental tiles, &c., and the grinding-house a more tolerable workshop than it is at present.

The clay is usually separated into four degrees of fineness, according to the work it is required for; and this being done it is thrown or mechanically conveyed into a pan similar to that described for grinding, but with a solid bottom and rollers about half the weight; with the addition of a certain quantity of water is mixed into a paste in a short time, and so thoroughly that a pastry-cook could not find fault with, but might wish for a similar apparatus to reduce the labour now necessary to provide for the demands of our juveniles for tarts. A scoop—which the attendant soon learns to handle dexterously—empties the mixing-pan while revolving, and deposits the pasty clay into a barrow or small four-wheeled wagon, in which it is conveyed to another department for further operations.

When the clay has to be used in large masses, such as retorts for gas works, large drain-pipes, &c., powdered firebricks, or fireclay goods that may have cracked while burning, are added to the clay when being mixed; and for the crucibles used by brassfounders and others, plumbago or carbon in some other form is added. Various mixtures are employed; for instance, the best terra-cotta is produced by certain proportions of fireclay mixed with Dorsetshire plastic clay.

As the treatment of the clay differs for the various articles made, it will be necessary to describe the moulding and burning for each kind. Premising that the clay is delivered to the workmen in a plastic condition, the manufactures may be said to consist of common firebricks, retorts for gasworks, sanitary tubes, glazed and enamelled bricks, and terra-cotta.

Firebricks are made in a large shed, in which tables are placed; at each table a man is stationed and kept supplied with clay. The moulds consist of what may be called a rectangular box, without top or bottom; the clay is first kneaded by the brickmaker to a shape roughly approximating to, and then pressed into, the mould. [Here an intending visitor to the brickworks may be cautioned against going too near the table (if his coat is a good one), as brickmakers take a cruel pleasure in bespattering respectable clothing.] Two boys are required to carry away the bricks made by one man; and they are then laid upon the floor, heated by steam, or the products of combustion from fires placed at one end that pass under the floor on their way to the chimney; by these means the bricks are dried so as to bear piling in the kiln. As an illustration of the necessity of employing material that is a good conductor of heat to form the floors of drying-sheds, it

may be mentioned that a floor made of cast-iron plates will cost nearly three times as much as a firebrick floor; but will only require about two-fifths of the fuel to dry the same quantity of bricks; the saving in coal being 56 per cent. in favour of the iron floor.* The bricks are now ready for burning. The kilns considered best are rectangular, about 40 ft. long, 20 ft. wide (outside), and 8 ft. or 10 ft. high inside; the top is arched over, and in this arch are small openings at intervals for the whole length, to allow steam and products of combustion, after having circulated among the bricks, to escape. The fireplaces are on both sides of the kilns; and according to the number on one side, they are designated "eight-holed" or "ten-holed" kilns.

Retorts are round, oval, and D shaped, about 3 in. thick, 4 ft. to 10 ft. long, and are built up in annular wood moulds. The clay, being used in large masses, must possess a certain degree of porosity to ensure thorough burning and non-liability to crack: this is secured by adding to the fireclay when in the mixing-pan, fireclay material that has been previously burnt, and afterwards powdered, as before mentioned (and sometimes sawdust also); so that when the built-up retort is being burnt, the raw clay shrinks, while the "rough stuff" retains its original bulk (sawdust when used being consumed), and the finished article left sufficiently porous. The shrinkage of fireclay is such that any article to be 12 in. long after, must be 13 in. before, being burnt.

Sanitary tubes are made in a machine; the best consisting of a cylinder having an open top, and an annular opening in the loose plate that covers the bottom equal to the transverse section of the pipe it is required to produce. In the cylinder fits a piston, attached to the end of the rod of another piston working in a steam cylinder placed immediately above that for the clay. When a pipe is to be made, the pistons are raised by admitting steam into the lower end of the upper cylinder; the lower piston being then raised some inches above the top of the clay cylinder, so as to allow plastic clay to be thrown in. By admitting steam on the top side of the upper piston, the clay is forced by the lower piston through the annular opening in a manner analogous to the working of a sausage-machine, only that a hollow instead of a solid stream issues from the pipe-press. The pipes are cut off by a wire to the required length (generally 2½ ft.), and the sockets for small pipes (3 in. to 8 in. diameter) are luted on by hand, although there are machines with a pair of movable dies to form the body of the pipe and its socket at one operation, similar to the larger machines, but little more than half the quantity can be made by the same machine when the sockets are also formed by it. The tubes are set vertically and dried by heat from steam pipes placed about 6 ft. *above* the floor on which the tubes stand, so as to dry the sockets first; after which they are turned over for the "spigot" (or plain end that fits into the socket of the pipe next to it when laid), to be "fettled." By these machines tubes can be made with rapidity up to 30 in. diameter; in quantities varying according to size from 3,000 to 150 per day per machine. Sanitary tubes (and retorts), are set in kilns with their axes vertical, so that the flame can pass both outside and through them. To give the tubes the glaze, which all who have seen a town drain being put in have doubtless noticed, chloride of sodium (common salt) is thrown into the fire; the heat being sufficient to volatilise it and cause a coating of silicate of soda to be formed on the exposed surfaces of the tubes.

The application of bricks having glazed or enamelled faces to the interior of bath-rooms and baths, fishmongers' and other shop walls, the walls of entrances, and passages of private houses, lavatories, &c., is another advantage for which those who design buildings, and those who keep them clean, are indebted to the manufacturer. For durability, cleanliness, and cheapness combined, these bricks are unrivalled. They are produced in various colours; Venetian and coral reds, black, greens and blues of various shades, grey, drab, buff, and white; the tints being stated in the order that they are charged for; red being the most difficult, and white the easiest to obtain perfect. After being moulded and dried, similar to fire-bricks, they are taken to a powerful screw-press, from which they issue perfectly square and smooth on the angles and surfaces. The colouring matter is applied by dipping the bricks into "slip," a felspathic and siliceous liquid of the consistency of good cream; they are then laid on shelves in the drying-shed until the following day, when the glaze is applied on a similar manner to the "slip." The bricks ordinarily made are "headers," which are glazed in one end only; "stretchers" on one side; "splayed ends," having a triangular piece cut off one corner, and glazed on the three sides formed by what were two in the common brick; and "bull noses," having one corner cut off by a quarter of a circle, and glazed round it and the adjacent side and end. For all colours, excepting white, the bricks have to be burnt after "slipping," and again after glazing; no kind of coloured "slip" having yet been discovered that will bear the application of glaze before a preliminary burning. For this class of work the greatest care is necessary in every stage of the process, to avoid chipping the corners or defacing the exposed surfaces before and after burning, to maintain the proper heat in the kilns, and to see that a first-rate quality of coal is used.

Chimney-pots, and terra-cotta wares generally, are made in plaster moulds, the manufacture being more or less complicated, according to the degree of ornamentation; they, and the enamel-coloured glazed bricks, have to be burnt in "muffled" kilns—or those in which the flame does not come in contact with the articles being burnt. The good quality of these wares is indicated by a pure and regular colour, smooth faces, sharp edges, and a clear ringing sound when struck.

This description of the fire-clay manufacture is necessarily a very general, and, to some extent, an incomplete, one. Many modifications are thought to be advisable by some manufacturers both in machinery and methods of working; but as a brief account of the practice of some of the most eminent firms in the trade, it may be accepted as showing the degree of perfection at present reached; future inventors will, doubtless, increase the facilities for producing articles, the demands for which are now in excess of the supply. T. G.

* From experiments by the writer.

## ARCHITECTURAL DRAWING.

### ARCHITECTURAL ASSOCIATION.

At an ordinary general meeting of the members held on Friday evening, the 17th ult., the President (Mr. E. J. Tarver) in the chair, Mr. Arthur Protch and Mr. U. J. Wright were elected members.

The secretary (Mr. Bowes A. Paice) proposed votes of thanks to Mr. Lewis H. Isaacs, the architect of the baths and washhouses, Paddington, for his kindness in conducting the members over the building; and to Sir G. Gilbert Scott, for granting permission to visit the new Midland Hotel, St. Pancras, which votes were carried.

It was announced that on the following Saturday, the 25th inst., a visit would be made to the St. Stephen's Club, Westminster, and that the fifth annual excursion would take place the third week in August, the discussion upon the proposed routes being reserved until the next meeting.

Mr. R. Phené Spiers read a paper on "Architectural Drawing." In the course of his remarks he said that he purposed dividing the subject into three parts:—1. To include drawings made for the purposes of elementary study of architecture, for the study of design, as preliminary drawings for clients, and competition or exhibition drawings; 2. Working drawings; and 3. Drawings made whilst travelling for the purposes of study. By drawings made for elementary study, he meant those which a pupil on entering an office ought to make, in order to acquire a general knowledge of the use of instruments and of the brush. He believed that very few architectural pupils entered an office with a knowledge of architectural drawing. In the present uncertain state of architectural design, the subjects at first taken up might vary very considerably, and according to the style of the office, the five orders, or the Gothic work in Brandon's Analysis, or perhaps the elements of Queen Anne, were put before the pupils. He had no hesitation in stating that he considered the five Roman orders, followed by the three Greek ones, to by far the best models for beginners, the reason being that the column and entablature of each order was complete in itself, without reference to its dimensions, execution, or surroundings. There could be no better training for the eye, therefore, as regarded the study of scale and relative proportion of mouldings, than the Classic orders, it being clearly understood in the case that the end justifies the means. He looked upon the study and drawing of the orders as equivalent to the acquisition of Latin at schools, not necessarily intended for ultimate use, but only to form the mind. As regarded the execution of architectural drawings, the line should always be firm and of equal thickness throughout its whole length, and every fraction of an inch of that line should be ruled with great care. The thickness of the line necessarily varied with the scale of the work delineated. By the study of design, he meant work which was done in preparation for the Class of Design, the Academy, or for other purposes. He thought it very important in making first sketches to begin on a small scale—$\frac{1}{16}$ for dwelling-houses and public buildings, and 32 ft. to an inch for hospitals or large public buildings, and then gradually to increase the scale of the whole design or parts to ½ for general drawing, ¾, 1, and 1½ for details, and half full size or full size for mouldings. He thought, speaking generally, that it was a mistake to make the first sketches with a scale, for the imagination was apt to be cramped if they allowed themselves to be restricted by absolute dimensions at first. It was very important that the plan and elevation of their sketch designs should be blacked in or tinted. There was a method universally adopted in France, which was to make continual use of tracing-paper in studying designs. To trace all the features approved of, and insert new elements, takes very little time; and they had the advantage of being able to compare the first and the revised study, which they had not if the first had been rubbed out to give way to the second. Many of them might be aware that it was the universal custom in England to shade all architectural show drawings (if he might so term them), shadows being projected at an angle of 45°. It was still the custom, not only in France, but throughout the Continent. The revival of Gothic architecture, and the measuring of ancient Gothic churches for restoration and other purposes, led to the rejection of shading and preference for line drawing; possibly because a great deal of the effect of this old work depended upon the jointing of masonry. At all events, not only had the practice of tinting in offices quite fallen into disuse, but the principles of shading were not understood. The object of projecting shadows at 45° on an architectural design was purely a conventional one. It was fairly open to inquiry (1) whether such representation did convey a correct impression; and (2) whether there was any other equally simple way of obtaining the same result. As regarded the first point, he could only assert that, as far as his experience went, he had rarely if ever been mistaken in the opinion received from such drawings, and that buildings which had been erected from drawings he happened to have seen before their execution had conveyed to his mind precisely the same effect that he estimated when examining the shaded drawings. And, further, that not only architects but journalists perfectly understood the shaded elevations, and could critically analyse therefrom their ultimate effect if carried out. In answer to the second point, the other obvious way of obtaining similar results was to be found in perspective, although he would then say that he would be extremely unwilling to depreciate the value of perspective drawings. The projection of shadows was more adapted and fitted to Classic than to Gothic work, though in such designs as those by Mr. Godwin or Mr. Burges, in which there were rythm and symmetry, and what he must be allowed to call Greek feeling, the projection of the shadows brought out all the qualities of the design. His objection to perspective as the only means of ascertaining the effect of a design was the difficulty of making use of it for the study of details, being far too complicated. The correct projection in Gothic, or a pedimented window in Classic architecture, was difficult to make, and even one error in the perspective, on the one hand, or a natural tendency to "cook" the feature, on the other, in order to make it look like what they desired, must entirely deceive them as to its ultimate actual effect; not to mention the difficulty of retracing their steps to obtain from the perspective changes made back to their geometrical drawing. None of these difficulties occurred with shaded drawings; it took so short a time to project shadows, that the student commenced to delineate them on his first sketch,

so that from first to last it formed a part of the study of his design. A deliberate attempt at "cooking" would be detected at once by the first intelligent observer, and, in fact, it was not worth while to "cook," because it would take less time to alter the feature. The execution of geometrically-shaded elevations was so purely architectural, that it must be done in the office, and no architect's exhibition or competition drawing in France had ever been put out to his knowledge; whereas, the perspective drawings, on the contrary, if done to a large scale, took so long a time to execute, required so much room, and, generally speaking, an expert draughtsman, that it could only be done out of the office. With regard to the relative values of tinted and etched drawings, it was by the elementary instruction in, and their habitual practice of, tinting geometrical drawings that the student learnt how to use his brush. With respect to the finishing of perspective or geometrical drawings, whilst on the one hand he would be inclined to condemn the elaborate finish and the employment of body colour in tinted drawings; on the other hand, the waste of labour involved in etching seemed to him to be equally a mistake. He believed that the magnificent geometrical drawing of Sir Gilbert Scott's designs for the Edinburgh Cathedral took a month or six weeks to execute; whereas, Mr. Thomas Allom would have produced in colour a far better result,—truer and more like nature,—in a day or two.

Speaking of working drawings, Mr. Spiers said that he would warn them against employing the system of shadows, otherwise they might find some intelligent workman executing them. For working drawings the artistic effect should be quite of secondary importance, the object being simply to distinguish different materials for the instruction and guidance of the quantity surveyor, and of the contractor and workman. (1) The colours should be those which were commonly found in every colour-box; (2) as a rule they should be unmixed, because it was difficult to obtain the same qualities of tone in subsequent mixtures; and (3) as far as possible they should be in accordance with the colour of the material indicated. He thought, for instance, that it was a mistake to use bright blue for stone, because such a use led to contrasts of effect which would be wanting in the executed building, and were therefore deceptive. The list which he would venture to suggest for the approbation of those present was the following:—Stone, burnt umber; brick, light red; tiles, Indian red; fir and deal, yellow ochre for unwrought, tinted over with burnt sienna when wrought; oak, warm sepia; iron (wrought), Prussian blue; (cast), if necessary, perhaps a green; lead, cobalt; brass, gamboge; copper, gamboge and indian red; slate, indigo; plaster, Payne's gray; glass, mottled cobalt; cement, cold sepia; concrete, mottled grey and sepia. The sectional parts should all be dark tints of the same colour, except fir and deals, which might be burnt sienna (yellow ochre being too light a colour), and sometimes iron, whilst it was found more convenient to tint vermilion in section; if the distinction be made between cast and wrought, emerald green would do for the former, and carry out the principle above laid down. This left two other colours (there being sixteen in all), viz., black and carmine, the former being best to represent old work, the latter useful (on account of its transparency) to tint in sections, the construction of which it had not for the moment been found convenient to determine.

For drawing on when travelling, he thought an imperial block and octavo sketch-book would prove the most useful. Some preferred quarto or smaller square sketch-books; but they were not so convenient to hold. For water-colour drawing the paper of a block had one disadvantage in its cockling up. He always, therefore, took a small board, and either mounted his paper with mouth glue, or fixed it with drawing-pins. He thought it was a great advantage to vary one's work, as one kind of drawing was a relief to another. Perhaps the best course to be taken (for the purposes of study) if they intended measuring or drawing, in perspective, a building, or a portion of a large building, was to make a sketch plan, elevation, and section of the same before commencing; the plan could be measured with sufficient accuracy by pacing it, and the elevation and section could generally be obtained in an approximate way by measuring some 8 ft. or 10 ft. in height first, then retiring a few paces, holding up a two-foot rule perpendicularly, making the 8 ft. or 10 ft. accord in height with 4 in. or 5 in. of scale, and raising the eye to some second line, such as a string-course. The number of additional half-inches would give them the number of feet to be added to the 8 ft. or 10 ft. That, say, gave them 20 ft. in height; again retiring let that dimension accord with 5 in., and ascertain in like manner the height of some other marked line. They would find it possible, if the rule be held perpendicularly, to obtain within 5 per cent. the real height of a lofty building. The rule of "measure and plot on the spot" was an infallible one, and could not be too much impressed on the student. For the measuring of mouldings an instrument called the cymagraph, invented by Mr. Sharpe, was of great value. The perspective drawing might be on white or tinted paper, and in pencil or shaded, outlined or etched, or tinted; and he thought that water-colour drawing was the best means of training the eye to recognise harmony and contrast of colour.

Mr. Ridge could not agree with Mr. Spiers regarding the use of projecting shadows at an angle of 45°. As a matter of fact, he fancied that one very seldom either projected a shadow geometrically and accurately in designing any work, or put it in perspective. The habit was so common of working back a plan, elevation, and section of anything that was to be designed, that one knew intuitively almost the effect which would be produced by that which was represented by the three drawings taken together; and he thought that it was very rarely necessary, for the purposes of design, either to go to the difficult process of projecting shadow accurately at two angles of 45°, or to that of throwing anything into perspective. He confessed that it was the last thing that he did,—that was to put anything in perspective. The remarks made upon colours by Mr. Spiers were such that would commend themselves to all present.

Mr. Ravenscroft differed from Mr. Spiers's view, that the question of drawings of competition being coloured or etched did not materially matter.

Mr. Mathews was of opinion that shadowing and perspective were distinct, and that the former could not supersede the latter. In some perspective was absolutely a necessity and must be resorted to. Neither one principle nor the other could be solely adopted.

Mr. Johnson reminded the meeting that the fact should not be lost sight of that the perspective drawings only represented a building from one point of view.

Mr. Robertson said, that with reference to the merits of shaded and perspective drawings, the great tendency in the latter was the strong temptation to "fudge"; and when a perspective was executed, it was very difficult to discover the "fudging"; but there was no such temptation in executing a geometrical drawing, because "fudging" would spoil the drawing. In several respects he believed the balance was in favour of geometrical drawings with projecting shadows as compared to perspective.

## SCHOOL BOARD SCHOOLS AT PORTSMOUTH.

We give in our present number illustrations of Elementary Schools, erected by the Portsmouth School Board, in Kent-street, Portsea. The boys' and infants' schools are on the ground-floor, and the girls' school is on the first floor over the boys' school. The schools will accommodate 160 boys, 160 girls, and 206 infants, making in all 526 children. The amount of contract for this building, exclusive of fittings, was 2,518*l.*; but the cost of fittings, superintendence, &c., will bring up the amount to very nearly 6*l.* per child, and out of this a considerable amount has had to be expended in raising the surface of site to a level with the adjoining roads. The buildings are faced externally with red pressed bricks, and have Bath stone dressings, and are roofed with tiles. They are heated by Boyd's ventilating grates, and the foul air is extracted by air-flues carried up from the ceilings, and separated from the smoke-flues by iron flue divisions. Messrs. Davis & Emanuel, of Finsbury-circus, and Messrs. Mileham & Kennedy, of Great Marlborough-street, London, have acted jointly as architects. Mr. Charles Morey is the contractor, and his manager is Mr. Cogswell.

Another Board School, to accommodate 684 children, is also being erected in Albert-road, Portsmouth, under the superintendence of the same architects; and in this latter case, Mr. Quick, of Southsea, is the contractor.

## REREDOS, WORCESTER CATHEDRAL.

The recent decision against the reredos in Exeter Cathedral has caused some trepidation in Worcester, where a work of similar character has been set up in the cathedral. We publish a view of it in our present number.

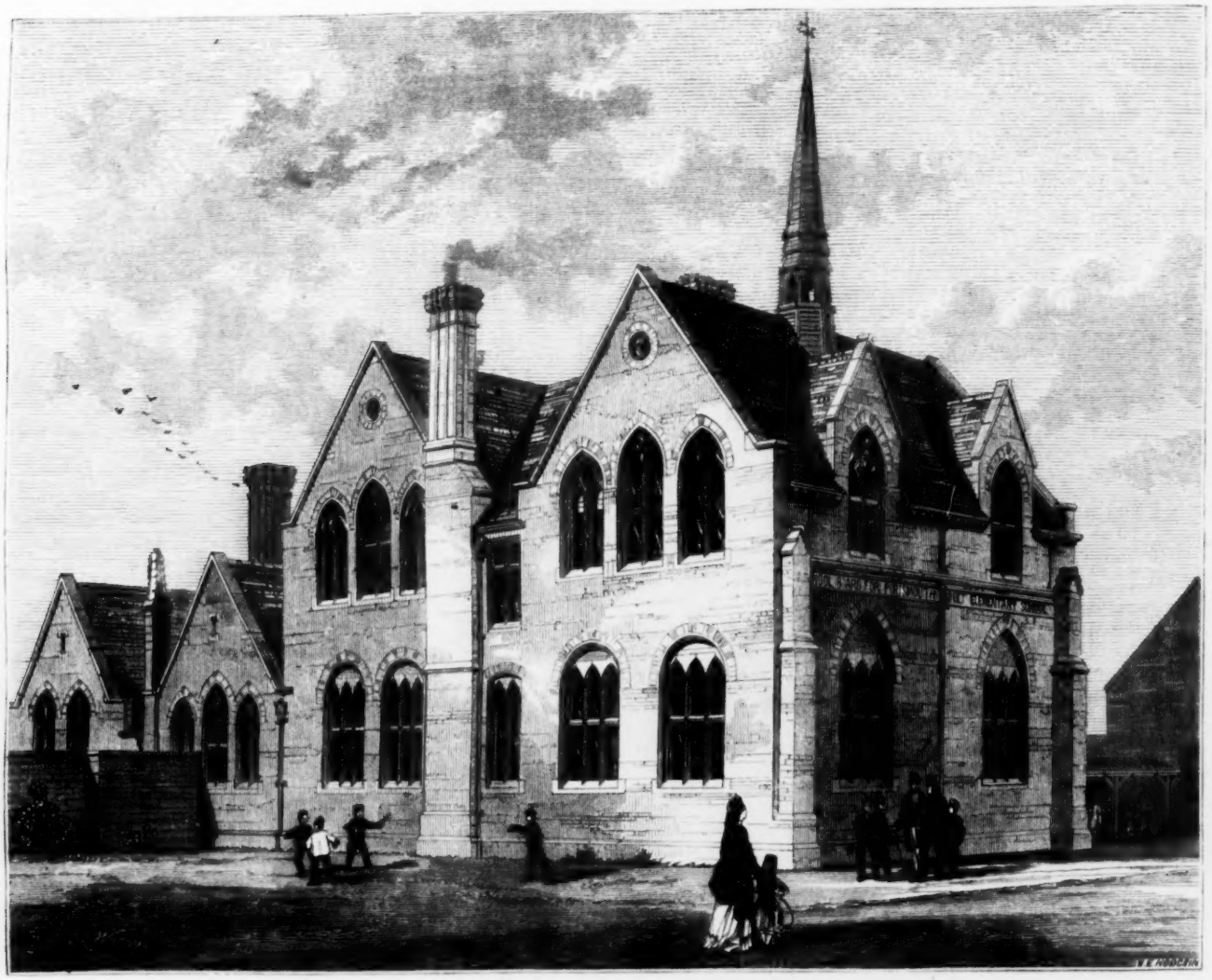
It is placed in the same position as the old screen which it supersedes, between the two eastern piers of the intersecting bay at the east transept. The main portion of the design consists of five niches, each containing a seated figure nearly life-size, that in the central and largest niche representing our Saviour in the act of benediction, those to the north St. Matthew and St. Mark, and to the south St. John and St. Luke. Below the figures runs a horizontal string course a few inches above the altar-table. The niches are separated by clustered shafts, with richly-carved capitals and moulded bases supporting gabled canopies with elaborate cresting and finials. The arched head of each canopy is in the form of a trefoil, and between the gables are smaller canopies, similar in form, containing figures of angels sculptured in white alabaster. Above these again is a horizontal cresting supporting other angels.

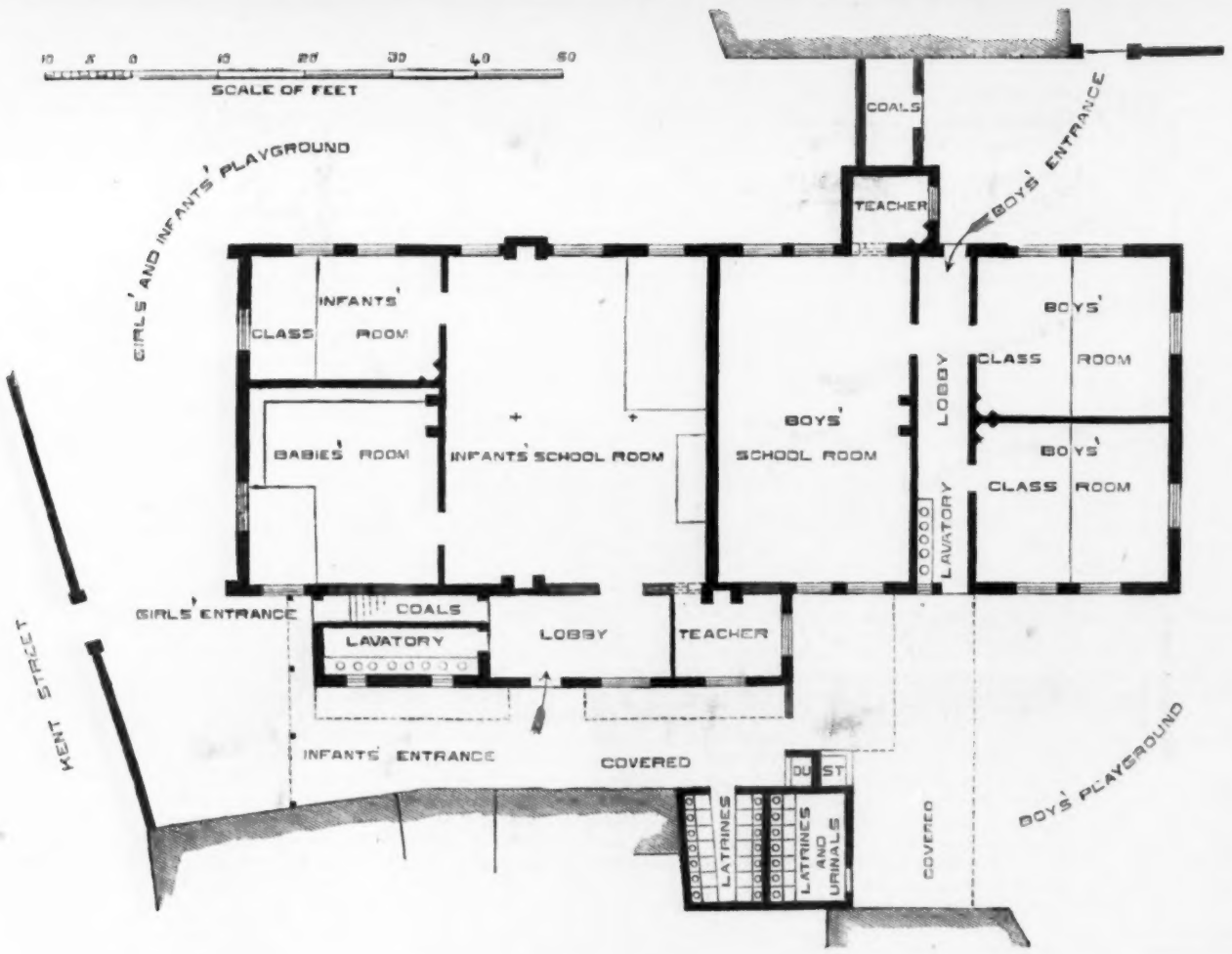
From the central gable rises an open canopy, resting on four clustered shafts of coloured marbles, and surmounted by a pyramidal spire crocketed on the angles, and terminating in a small inlaid cross. The spandrels and finials are richly jewelled with polished Derbyshire spar and pebbles, and inlaid with mosaics, and in the centre of each gable is a circular medallion with sculptured bust in relief. The north and south wings of the reredos consist of open arcades of three gabled arches, similar to those over the figures, but somewhat less elaborate, each opening containing a light grille of wrought iron, gilt. The solid base extending on either side of the table beneath these arcades is relieved by diaper-work, enriched with gold and colour, and polished gems of Derbyshire spar of the most varied and beautiful tints. The outlines of the whole of the carving, as well as of the arches, string-courses, &c., are gilded, and the extreme brightness of the gold is subdued. The figures especially are skilfully treated. The materials employed throughout are polished marbles and alabaster.

The reredos was executed from the design of Sir G. G. Scott, R.A., by Messrs. Farmer & Brindley; and the cost, including recent gilding and decoration, may be called 2,300*l.* It was presented by the dean (who has just resigned), the Rev. Dr. Peel.

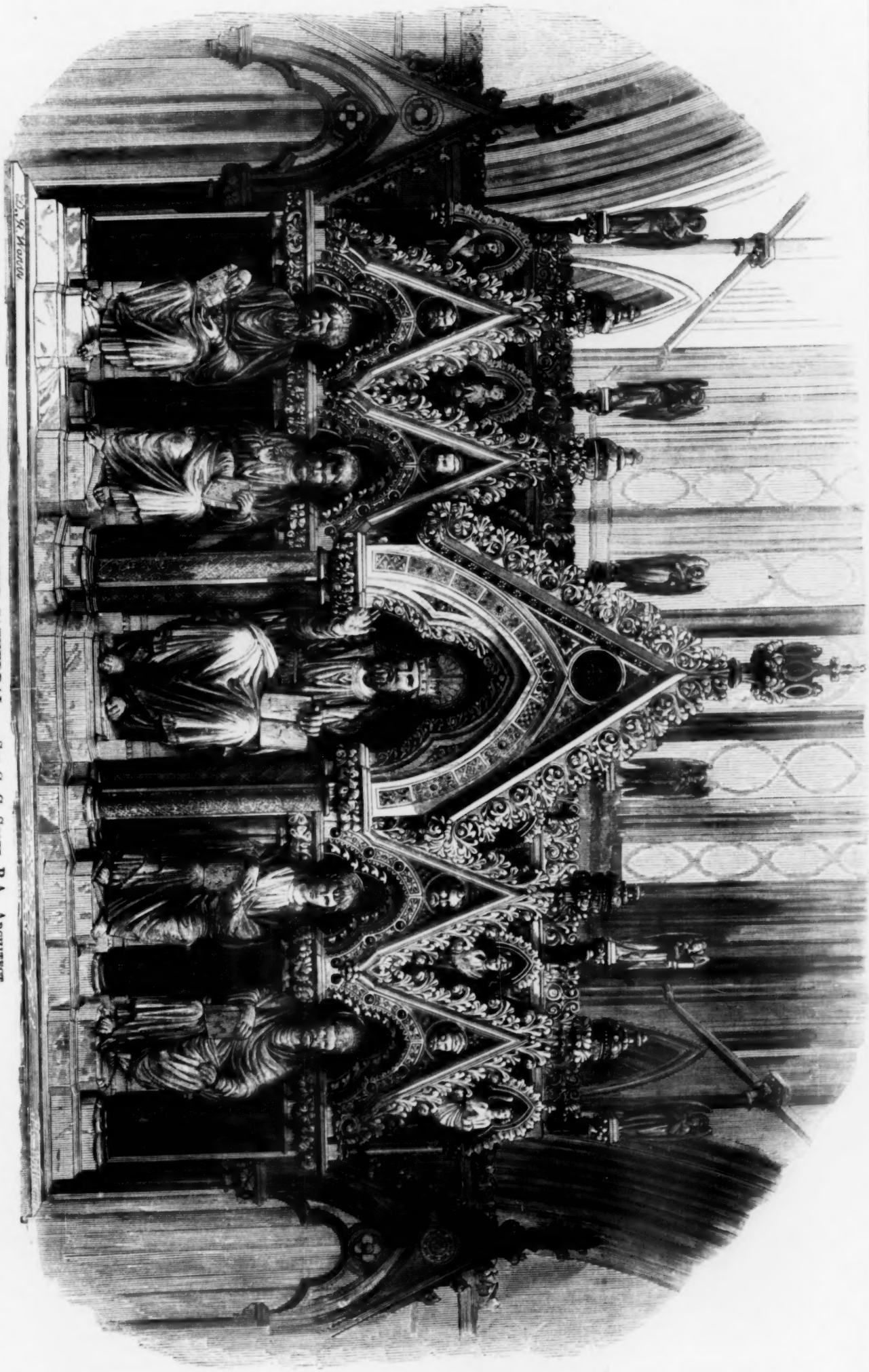
The total amount spent in the cathedral is said to exceed 100,000*l.* It should be remembered that the principal part of the cathedral restoration was carried on from the designs and under the superintendence of the late Mr. Perkins, architect to the dean and chapter; and that Sir Gilbert Scott was engaged for the rearrangement and decoration of the choir and nave. The firms which undertook the contracts from time to time were Mr. Bennett, of Birmingham; Mr. Hughes, of Bristol; Messrs. Collins & Cullis, of Tewkesbury; and Messrs. Wood & Son, of Worcester. Decorators, Messrs. Hardman, of Birmingham, and Mr. Wells, of Worcester. Sculptors and carvers, Mr. Forsyth, Mr. Boulton, and Messrs. Farmer & Brindley. Brass and metal workers, Messrs. Skidmore, of Coventry. The encaustic tiles for the choir and altar space were manufactured at Lugwardine, from designs by Sir Gilbert Scott, R.A.; and the marble for the same portions was supplied by Messrs. Poole & Sons. The clerk of the whole works was Mr. Forrest.

**The Cookery School.**—On Saturday Mr. Buckmaster delivered the second of his weekly lectures on cookery. The school was crowded, and the illustrations were more successful than on the previous Saturday. He said the chief object of these lectures was to awaken more public interest in the National Training School of Cookery. General principles and a few useful hints may be given by lectures, but the art, like every other art, must be acquired by practice. We want, said he, 25,000 young women to go into the country and teach cooking. An important feature of the school was the training of instructors, but up to the present time very few suitable persons have offered themselves as teachers. A meagre or vegetable soup, *sole au gratin*, and savoury omelettes were prepared. One important feature of these Saturday lectures is that persons can see the beginning and finishing of every dish, and about ninety paid the extra 6d. for tasting.






SCHOOL-BOARD SCHOOL, PORTSMOUTH.—Messrs. Davis & Emanuel, and Messrs. Mileham & Kennedy, Architects.



REREDOS, WORCESTER CATHEDRAL.—SIR G. G. SCOTT, R.A., ARCHITECT.

*Sculptors, Messrs. Farmer & Brindley.*

## THE CHURCH OF ST. MARY, NEWINGTON, SURREY.

Now that the parish church of Newington, Surrey, is about shortly to be razed to the ground, and its successor, with a new face and form, to start up at some distance off, it may not be uninteresting to show that the original site of the church,—that, at least, of the Domesday record,—was where the church stands now. This is a matter which writers on the churches in Surrey have expressed some difference of opinion about; but by means of an old document, found some years ago among my grandfather's papers,—a copy of a *Terrier* of the glebe lands, houses, &c., made in 1729, and of which he took a copy in 1799, when Rector's Warden,—I am enabled to demonstrate that the church, since the Norman Conquest, has never changed its situation.

In that portion of Domesday Book which relates to Surrey, there is a description of the manor of WALEORDE (*Walworth*), where it is said there is a church with eight acres of meadow land.

The first mention of NEWETON (*Neucington*) occurs in the Testa de Nevil (*sive Liber Feodorum* in *Curia Scaccarii*), of the time of Henry III., or the first half of the thirteenth century; it is there stated that the Queen's goldsmith holds of the king, *in capite*, one acre of land in Neweton, by the service of rendering a gallon of honey. In the taxation of spiritualities made by Pope Nicholas IV., in 1292, the church is spoken of as being at Newington; and in the Archbishop of Canterbury's Register, 1313, the parish is called Newington *juxta* London.

The living was a rectory, then in the Archbishop's gift, and of increasing value. In the time of King Edward the Confessor it was worth only XXX. *solidos* (90*l.*), but when the Domesday Survey was made it was worth double that sum. The manor, on the contrary, was becoming of less importance. The first notice we have of it is that Edmund Ironside gave it to *Hitard*, his jester, who, on going to Rome, gave it to Christ Church, Canterbury. In King Edward's time it was taxed for five hides (500 acres), but, at the time of the survey, for three hides and a half only, nearly one-third less. After the thirteenth century we hear no more of the church at Walcorde; from that time the church is said to be at Newington. The question, therefore, is, did the original church stand at Walworth, and was subsequently moved to Newington, or did it only change its name with the new name given to the parish? Lysons, who wrote in 1791, "Environs of London," suggests that the church might have been rebuilt on a new site, and becoming surrounded by houses, the locality received the name of Neweton, or Newtown, subsequently Newington. But this suggestion is a mere hypothesis. Where churches have been first built there is a general disposition on the part of ecclesiastics to retain them; the pious commonly desire to worship God where their forefathers knelt before them, and it is the duty of the clergy to encourage this sentiment. In those days there were no London improvements required at Newington to endanger the sacred fabric, and change its hallowed locality. When churches need rebuilding, it has been the rule in England to rebuild them where they stood before, and I shall be able to show that the church at Walcorde, otherwise Newington, was no exception to this laudable practice.

The words of Domesday record are,—"*Ibi Ecclesia et* viii. *acræ prati.*" These eight acres of meadow-land were attached to the church, and formed the church-field. They were also contiguous to the manor, which was of large extent, and, in King Edward's time, consisting of 500 acres, occupied nearly the whole of the present parish, which contains only 630 acres, including Walworth Common. Even the 350 acres, the extent of the manor at the time of the Conquest, supposing the present manor-house to stand near the site of the original one, and to indicate the probable centre of the manor, would bring the situation of Newington Church within the full meaning of the words "*Ibi Ecclesia et* viii. *acræ prati.*" The old church at Newington had a low square tower of flint and rag stone, similar to other church-towers in Surrey that date from the fourteenth century, or somewhat earlier, and its becoming surrounded with houses was comparatively a recent event.

Manning and Bray, in their stupendous History of Surrey, have no hesitation in considering Walcorde (Walworth), still the name of the manor, to be the same as Newington; and the Rev. Mr. Hussey, in his account of the churches in Surrey, remarks, if this be so, then the Domesday church was at Newington, not at Walworth. The Domesday church was where the eight acres of meadow-land were, and these were at Newington.

Among the *items* contained in the *terrier* of the glebe, lands, &c., made in 1729, when the Rev. Wm. Taswell was rector, is one which begins as follows:—"*Item.* On the south side of the churchyard there lies a parcel of pasture and meadow ground, called the Church-field, in the occupation of the Widow Harwood, containing about 7½ acres. This church-field formerly contained 8 acres, but in the year 1648, part of it, containing in length about 200 yards, and in breadth about 4 yards, was taken out of it to make a footway leading from Newington to the east end of Kinnington-lane; and in the year 1718, the trustees for mending and repairing the road from Newington to Vauxhall, took about 14 ft. in breadth, and about 48 ft. in length, from the Church-field aforesaid, to widen the road turning from Newington to Kinnington, which road was before so narrow that two wagons could not meet there. . . . ."

The *terrier* also states that two small pieces of the Church-field were taken, one about 1637, and the other in 1665, to enlarge the churchyard. There can be no manner of doubt, therefore, but that the church, with its 8 acres of meadow land, recorded in "Domesday Book," was one and the same with the church at Newington, and that we may say of the latter, as the record says of the former,—"*Ibi Ecclesia et* viii. *acræ prati*," though it would now be impossible to find any portion of the latter which has not been brought into subjection under the despotic law of the spread of bricks and mortar.

H. C. BARLOW, M.D., F.G.S.

## ORNAMENTAL WORK IN METAL.

LAST week, at the Society of Arts, a paper was read "On Progress made in Ornamental Processes connected with Metallic and other Industries," by Mr. W. C. Aitken, in the course of which he said:—The progress of a nation is not to be tested by the production of works for the few gifted with wealth, but in the abundance of those produced for the use and comfort of the many; the true wealth of a nation is not best represented by its mines of precious metals, or its works in these. It is in the abundance of its mines of useful metals, as iron, and the coal with which its ores are smelted, and in the energy and ability of its people to convert these into the thousand forms given to it, that the true wealth of a nation consists.

The production of iron in England in 1871 amounted to 6,733,213 tons; the united production of North America, Germany, France, Belgium, Austria, Russia, Norway, Sweden, Italy, Spain, Switzerland, South America, Asia, Africa, and Japan, the aggregate of the production of iron in all parts of the world, except England, only amounted to 7,107,324 tons. England therefore produces nearly as much iron as all the other countries in the world. Since 1860 she has nearly doubled her production; in that year it only amounted to 3,826,752 tons; in 1871, it was increased to 6,733,213 tons. It must not be forgotten that the means which have conduced to the development of the manufacture of iron in other countries are all our own. Dudley was the first who applied mineral fuel to the smelting of iron; Cort introduced the puddling-furnace and the rolling-mill; the genius of Watt placed in the hands of the manufacturers of iron the irresistible and unlimited power of steam to propel and give motion to their rolling-mills, to produce which the comparatively feeble and not always available force of water is totally unequal; Neilson economised the consumption of fuel by the application of the hot blast; Nasmyth rendered practically useful the steam hammer; Armstrong built up wrought iron and steel, and produced ordnance, the penetrating power of which necessitated an increased thickness of armour plating; Sanderson suggested the possibility of rolling armour plates, such as are now produced by John Brown & Co., and Cammell & Co., of Sheffield; the universal rolling-mill was the creation of Arrowsmith. At the root of the cheap conversion of iron into steel lies the discovery of an honoured member of this Society, Bessemer, whose process is to be found applied all over the Continent, wherever iron is made. The ease and economy with which iron will in the future be converted into steel, will owe its existence to Bessemer's discovery as the initial letter. Industry in iron has recently received a check, a shaft guided by a feather from the wing of a collateral industry has inflicted on it a serious injury. To this is due the origin of the paragraphs going the round of the public prints. The *Scotsman*, about five weeks ago, had the following:—"Belgium, France, and Germany are gradually ousting English iron from all the large foreign markets. Belgium bars, of a quality which could not be produced in this country under 12*l.* 10*s.* to 13*l.*, were offered at 10*l.* 10*s.* delivered at Birmingham." On the 10th of the present month it was stated in a Birmingham newspaper:—"If the reduction of wages which the masters are seeking to enforce should be accepted by the men, the price of coal may, perhaps, be reduced to a sufficient extent to enable ironmasters to compete with foreign producers, but of this we regret to say there is little present prospect, neither masters nor men being willing to make any concession."

A national industry is checked by the war between capital and labour, having its origin at present in the coal districts. No fact is more certain than that the wages of miners bear no relation whatever to the advances made in the price of coal, which has checked our manufacture of iron, and laid it open to the introduction of foreign iron, the cheap production of which is aided by the economical living of foreign artizans, who are also better educated industrially, and in whose countries a better feeling exists between master and workmen, and strikes are almost unknown; Governments aid their manufacturers by the publication of reports, written by their most able men, setting forth the improvements made in other countries calculated to advance their iron industry. The progress, even the very introduction, of the manufacture of iron into France and Belgium, is due to Englishmen. The largest iron works in France, "The Creusot," owe their existence to John Wilkinson, of Broseley, who, in 1782, made the first iron bellows, and built a canal boat of iron (the parent of iron-ships, steamers, and iron-clads). The industry in iron of Belgium is due to another Englishman, John Cockerell, who, in 1817, commenced works at Seraing, near Liége. On the industry in iron of every country England is inscribed. The superiority, where exceptionally recognisable in foreign iron or steel, is entirely due to English inventive skill, and no doubt aided by foreign scientific education on the part of workmen. England must industrially educate her artizans employed in the iron trade; want of intelligence will not be compensated for even by cheaper coal.

The significance of the rumour in 1867, about foreign engineers carrying away orders for locomotives, should not be disregarded. Ten locomotive engines were ordered from an English firm at 2,450*l.* each; ten more from Escher, Weiss, & Co., of Zurich, at an advance of 100*l.* or 2,550*l.* each. The latter firm, on the completion of the contract, represented a loss had been sustained, and requested to be allowed to make ten more at an advance of 250*l.*, or 2,800*l.* each. The secret of the whole affair is thus explained. When the order was given, English engineering firms were full of work and could not promise early delivery. The Zurich firm executed the ten engines. Two-thirds of the material came from England. In 1865, when fifteen locomotives were ordered from the Creusot, it was not known forty others were ordered from English manufacturers. An offer being made to the same establishment to produce twenty-five more at the same cost, M. Schneider, the director, declined to undertake the execution of the order.

The most wonderful work in the Vienna Exhibition was the internal cupola, twice the diameter of that Michelangelo "hung in the air,"—in height and diameter two St. Peter's could have been stowed within it. "Hanging in the air" is simply a figure of speech, for much solid masonry helps to support the dome of St. Peter's; that at Vienna was only supported by slender rods of iron, bedded at their base in concrete. These rods descended down hollow pilasters of brick, which took no part in sustaining the cupola. This wondrous dome, "to which Diana's temple was a cell," the mightiest, the most overpowering in conveying the effect of vastness and immensity ever constructed "since the world began," owed its existence to the constructive skill of an English engineer—John Scott Russell.

The largest mass of iron exhibited was the work of an English firm—Johnson, Cammels, & Co., of Sheffield; in the rough it weighed

33 tons, was 20 ft. in length, 6 ft. 10 in. in width, and 10 in. thick, bent to a radius of 13 ft. 16 in.; it was not produced by a Prussian, though to be used for a Prussian ironclad.

The above as to progress of English mechanical genius, invention, and skill; then, as to her art industry. It is scarcely thirty-seven years since any effort was made to improve the character of our industries into which art enters by instituting schools of design. The work of changing the character of a nation is not the work of one generation, but of many; we must learn to labour and to wait. Fifty years ago such a noble monument as that which commemorates the virtues of Albert the Good—the Albert Memorial—could not have been executed by Englishmen. I am very doubtful whether it is the best way to encourage English talent in metal working by proclaiming, "In respect to certain works of art, especially in working metals, the work done was nothing like the work done three centuries ago. The conditions under which works of an ornamental character in metal are now executed are entirely different." With all the disadvantages under which we labour, there are firms in England who could rival the iron work of Matsys; a well-cover like that at Antwerp could be produced if paid for, or iron work such as in St. George's Chapel, Windsor, is not beyond the skill and cunning of living Englishmen. Pay the price, and the work can and will be done. A good deal of old iron work owes its beauty and coherence to rust; besides there is no reason for supposing it was executed by contract, estimates advertised for, or the lowest tender accepted. A good deal has been said about "doing work for the work's sake"; the principle is a good one, but no really good work is now done without pay. You may catch some rising man to do one work for fame: that done, it is not likely he will continue to work for the same paymaster. Those who are not intimately connected with manufactures pronounce verdicts manufacturers alone know; the money expended by them is rarely repaid by the sale of works of excellence in metal, some examples of which are equal in merit to those produced 300 years ago. It may be anticipated other branches of industry labour under similar difficulties. At Vienna we have been told "we were utterly beaten in art as applied to certain manufactures; in silversmiths' wares and enamels we were lamentably behind." Respecting silversmiths' wares, in which character it may be presumed would be included *repoussé* working, I failed to observe any examples superior or even equal to those of Elkington's in the Vienna Exhibition. The truth, however, should be told that there were only two English exhibitors of silversmiths' wares in the Exhibition. Against these were arrayed the manufacturers of silversmiths' wares from every country, especially those of Austria, Germany, Russia, Sweden, and France. I here, in illustration, place for your inspection an example of the beauty and delicacy of their work on a salver executed in *repoussé*, in silver and iron damascened in gold.

Permit me now to direct attention to a few ornamental processes which it appears to me advisable to cultivate in connexion with English industries. There is the process of enamelling. Enamel is simply glass composed of lead and glass. When transparent, oxide of tin renders the transparent glass opaque; mixed with oxide of gold it changes the clear or opaque glass into a purple; red is produced by the addition of sulphate of iron, oxide of copper produces green, violet is produced by manganese, blue by oxide of cobalt.

The enamel is poured from the crucible in which it is melted into flat cakes; these cakes are broken up, and reduced to a fine granular condition, in a mortar, or to an impalpable powder, by grinding with a muller on a slab; it is applied on metal which will stand a red heat without changing its form or fusing; gold, silver, copper, brass, or iron can be enamelled. There is no true enamel which has not been fused at a red heat. The modes of application vary; applied on a flat plate or plaque, it is worked with a brush. Of this class, are the Limoges enamels. Other methods of application consist in incising or cutting small troughs in the surface of the metallic object intended to be enamelled. In these the enamel is placed or applied; this method of application is called the "Champlevé." It may here be remarked that in what may be called commercial as opposed to fine-art enamels, the "champlevé," or grooving, or cost of cutting the troughs, is obviated by using a pattern in which the troughs have been cut, copies being multiplied by the ordinary process of casting. Another method of reproducing is by means of extra-deposition; this method is that adopted by Messrs. Elkington, who succeeded in getting the enamel to adhere to the deposited foundation; the French enamellers were unsuccessful in doing so.

The next variety of enamels is the partitioned or "Cloisonné." In this variety the cells are not cut out, but are formed by bending a flat narrow strip of ribbon or metal in such a manner as to form the retaining walls of the cells: cut in horizontal section a honeycomb, or examine the cutting-out tools used by a pastrycook to cut out paste with which to decorate pastry: this gives the best idea as to the appearance of an object prepared according to the "Cloisonné" method for the reception of the enamel. In proportion to the simplicity or complexity of the design, so are the number of cells or parts of cells. These, after being prepared, are arranged on the object and soldered to it. The various colours of enamel are then applied in the cells, and fired by subjecting the object to be enamelled to the heat of a muffle. Repeated applications of enamel with repeated firings are required to fill the cells. The superfluous enamel is finally removed by grinding it away with pumice stone, smoothing it with stones of different degrees of fineness. Apart from the labour of forming and placing the minute cells, there are difficulties attending the firing operation. Should one part of the muffle be too hot, and the solder become melted which holds the cells, the more the enamel is in a fluid condition, the colours mingle, and a confluent mixture of colours is the result. The examples which are now submitted for your examination were produced by Messrs. Elkington; they only commenced their experiments three years ago; the results are most satisfactory. Larger and more important examples by them will be exhibited in the coming exhibition of enamels which will shortly be opened at South Kensington. A complete series of examples illustrating the production of "Cloisonné" enamel are exhibited, and an illustrated example of the difficulties attending the process of enamelling.

Your attention will next be directed to the Niello process, not much or generally known, only incidentally applied in England, and only to the more elaborate and costly objects used for ecclesiastical purposes. It was extensively taken advantage of by Italian gold and silversmiths. Niello may be called a metallic enamel, composed of silver, copper, lead, and sulphur; in its preparation the most difficult metal to fuse is first melted, the next fusible added, and so on; the melted metals in the crucible are stirred with stick charcoal to ensure homogeneity; the result is a black compound, which, poured from the crucible, is beaten into strips. The design to which it is applied is engraved on the metal object to be decorated, the lines being more pronounced and stronger than on an ordinary copper-plate for printing from. In testing an example of engraving, to which niello was intended to be applied, Finegarra, a goldsmith, of Florence, originated the art of copper-plate printing; he filled the lines of his metal plate with a black fluid, used damp paper to get an impression instead of taking a sulphur cast, and hence arose the art of copper-plate printing. The mode of applying the niello is by heating the vessel or object to be nielloed, and rubbing the niello into the lines: when skilfully applied, the niello adheres firmly; excess of it is removed by files, the surface is then stoned, and it is finally polished. Niello is undoubtedly by far the best means for decorating, in a quiet, rich manner, surfaces exposed to friction or wear; it preserves unbroken the contour of the larger objects where the preservation of pure form is desired; it is tougher than enamel,—no small recommendation. The Russians have cultivated the process very successfully; recently the French have adopted it. In the Vienna Exhibition it was shown very extensively applied to the decoration of trinkets, but there it was evident engraving, for the reception of the niello was dispensed with, and stamping took its place, the great bulk of objects to which it was applied being stamped.

Damascening, or inlaying one metal in another, is an art which has been practised a very long period, introduced chiefly on armour, and caskets, &c. There are two methods of practising the process. By one method the surface of the metal to be damascened is raised up into a file-like surface: the artist by his skill causes to adhere to the roughened surface threads of gold or silver, which are applied and burnished down. Broad surfaces are produced by working the threads or wires side by side. Heat is applied; the degree necessary requires great judgment. In the other surface to be damascened is incised or cut into, the incision at the bottom being expanded; into this channel gold or silver is introduced and beaten down. An example of an iron plate damascened with gold, illustrated this process.

A considerable misapprehension prevails as to certain works supposed to be inlaid exhibited by French manufacturers. These were incised for the reception of the metal to be inlaid, but the introduction of the metal was effected by depositing not really inlaying.

Against English progress is arrayed cheap labour, united with higher intelligence. The wages of foreign artizans engaged in the various industries on the Continent are very much lower than those of England engaged in similar industries. High wages such as those paid to English artizans are earned only by the few in each country whose skill and power of manipulation very far exceed those of their fellow workmen, the exception being those of the United States of America, where every article used is more expensive than in England. A family, consisting of five individuals, living in England (clothing not included) cost 1*l.* 10s. 6½d.; in New York, 2*l.* 6s. 6d. To single men, board and lodging including clothing, which in New York would amount to 95*l.* 9s. 10d., in England comes to 45*l.* 17s. 8d. In Germany, a working man earning 9s. 7½d. per week (25*l.* per annum), supported his family on 21*l.*, and had a balance of 4*l.* 10s. over. Another, who earned the exceptionally high wage of 29s. per week, lived, supported his family, and saved in the year 24*l.* 15s.

Low wages extend all over Austria, Italy, Switzerland, France, and Belgium.

The English manufacturer is placed at a disadvantage in the element of wages. But the power of endurance, arising from a better physically-constructed body, supported by nourishing diet, enables the English artizan to do more work than the foreign artizan, in a given time, especially where strength and sustained energy are required. The small industries in England are the large on the Continent, *i.e.*, those into which art enters—where physical endurance is less necessary than taste and neat-handedness. In these, owing to the superior education of the foreign artizan, the English manufacturer, especially of light fancy articles, is placed at a disadvantage. In this direction considerable progress has been made in light ornamental articles; those now produced in England are very much improved,—better, lighter, and more elegant in style; as examples of this there are the pen and needle cases of Messrs. Avery & Son, and articles known as *Nouveautés de Paris*.

* * * *

For forty years I have been connected with manufactures, thirty of which I have spent in the great head centre of metallic industry—Birmingham. The study of the advancement of manufactures has been that of my life; there has been no scheme, local or national, for their advancement which I have not promoted and actively engaged in. The future progress of manufactures is bound up in extending the means of diffusing education—scientific and industrial. The operation of the Education Act, by diffusing elementary instruction, is laying the best possible foundation for the higher, viz., the scientific, technical, or industrial, which must follow, the teachings of which will be largely assisted by local museums, such as the Council of the Society of Arts are now actively engaged in promoting.

## THE ARCHITECTURAL TREATMENT OF CONCRETE BUILDINGS.

SIR,—With reference to a letter in your pages referring to a paper on Concrete Building, read by me before the Civil and Mechanical Engineers' Society, and the discussion thereon, allow me to say a few words.

The members of the Civil and Mechanical Engineers' Society pride themselves in hitting hard in their discussions, and evidently think that truth will be more fully and surely elicited the more strongly and pointedly the contrary can be stated, not too strictly regarding whether or not these contrary statements are within their own knowledge or opinion. One of the "pointed" speakers who dealt with such "crushing cogency" against concrete from an architectural point of

view, told me afterwards that he had never seen more than one concrete building, and that one unfinished.

The chief object of my paper was to call attention to the advantages of concrete buildings. This part of the subject was fully discussed, and my statements and claims were not disproved, or even attempted to be gainsaid by a majority of the meeting. And it was gratifying to me to see that there was so little in my paper to suit the hard-hitting propensities of some of the members, that they preferred to pitch into a branch of the subject not really before the meeting, having been reserved as a subject for future discussion.

I mentioned the architectural treatment of concrete only incidentally, and in very few words, which were,—"I have found architects too busy to care much about the study of a new system of wall-building, when they are already possessed of other systems which they understand, and are satisfied with, and which they find easier to treat architecturally." And then the concluding sentences,—"Surely a system possessing so many undoubted advantages deserves the earnest consideration of architects. No supposed difficulties of architectural treatment should deter them from securing for their clients the many and important advantages to be gained. Much has been written lately about the demand for a new style of architecture. May I suggest that this may be found in studying the right architectural treatment of concrete buildings."

The part of my reply quoted in Mr. Lish's letter is not fully correct. It should have been,—"There is little or no difference in *architectural treatment* between the brick-built cemented house of the west of London and many concrete houses."

This I said in complaint against the architects who will not take the trouble to give concrete a better treatment. But I also mentioned that many of our best architects had endeavoured to step out of the beaten track, and had given us buildings in concrete, finished without the appearance of the sham stone front which is invariably given to a cemented brick house. And I further stated that the objections of "cracking," blistering, and peeling off, so often urged against cementing on brick and stone walls, do not hold good against cementing on concrete walls. I have said enough to show that Mr. Lish was not justified in concluding that I "consider the ordinary cemented front to be the highest style attainable by any concrete system."

I am fully persuaded that concrete building is capable of high and legitimate treatment whenever architects of ability take it in hand. The subject demands and deserves a treatment more carefully considered and more vigorous than any it has yet received.

I may mention that tiles and terra-cotta have often been used in connexion with concrete, to give colour and relief, and many besides myself will look with interest for Mr. Lish's promised explanation of his process for applying tiles to concrete building.

CHARLES DRAKE.

## PUBLIC BUILDINGS IN SUPPLY.

*National Gallery.*—On a sum to complete the vote of 30,000*l.* for the enlargement of the National Gallery, Mr. Beresford Hope asked for an assurance as to the speedy completion of the National Gallery. After the catastrophe at the Pantechnicon he thought they ought also to receive some assurance that the new building would be really or approximately fireproof. The present National Gallery was not so. Lord H. Lennox said he had every reason to hope that in the spring of next year the Galleries would be thrown open to the public and the national collections in Trafalgar-square and at South Kensington both safely housed in them. As far as science enabled them to go in that direction the new National Gallery would be rendered fireproof. The vote was agreed to, as were also sums to complete the votes of 5,000*l.* for the Industrial Museum, Edinburgh, and 11,134*l.* for Burlington House.

*Wellington Monument.*—On the vote of 500*l.* towards defraying the expenses of the Wellington Monument, Mr. Beresford Hope inquired of the First Commissioner of Works whether any progress was being made with the work in question. It was a painful and, in some respects, a discreditable fact that the completion of a work of so much public interest should be so long delayed. That delay was occasioned, he regretted to say, by the ill-health of the sculptor, but it was clear that the monument must sooner or later be finished, and the design of Mr. Stevens must be carried out by Mr. Stevens. Sir G. Bowyer said he thought that if, unhappily, Mr. Stevens's health prevented his completing the work, some one else ought to be associated with him for that purpose. He would be glad to know where hon. members could obtain some idea as to what the monument was to be like. Lord H. Lennox said it was perfectly true that the distinguished sculptor to whom the work was originally entrusted had been for some years in grievous ill-health, but at times rallying so much as to induce him still to incline to the hope—a very natural one—that he might put the final stamp of his genius upon the work he had commenced. He had recently placed a gallant friend of his and another gentleman distinguished in art, in connexion with Mr. Stevens, and he asked the Committee, so to speak, to pass a short vote of confidence in the First Commissioner of Works. They would not, he was sure, require him to advert more specifically to the means he intended to adopt with a view to try and bring the matter to a successful issue. The hon. baronet asked where he could get an idea of what the monument was likely to be. He wondered it had escaped his notice that a Blue-book had been published in which were given copies of the various drawings and also the details of the expenditure. He hoped soon to be able to make a satisfactory announcement on the subject to the House of Commons. Votes to complete the sums of 80,000*l.* for the Natural History Museum and of 23,344*l.* for the Metropolitan Police Courts were also agreed to.

*The Law Courts.*—On the vote to complete the sum of 80,000*l.* for the new Law Courts, Sir G. Bowyer took occasion to complain of the delay in their construction, and the consequent loss, in the shape of interest paid, to the country, as one of the most remarkable instances of mismanagement that had occurred in the national history. He recollected, he said, that when he was in Parliament some years ago a design for the new courts had been exhibited in the library in which utility seemed to have been completely lost sight of and the picturesque and ornamental aimed at, without, however, the attainment of any general beauty of design. There were what appeared like two rows of almshouses on each side, with numbers of chimneys and buttresses, and he should very much like to know whether that design, which met with no approval either from the press or the public generally, was to be carried into effect. For his own part he should infinitely prefer a plain, business-like building, such as Somerset House or the Law Courts in Dublin. The designs were all too ecclesiastical in their character. There was plenty of time to reconsider the question, and he trusted that the present Government would distinguish themselves by adopting some economical plan which would give us a business-like, simple, and noble structure, instead of the one which he feared was to be followed. Lord H. Lennox would not follow the hon. baronet into the question of taste, upon which they might possibly differ. The design selected, however, was the design of Mr. Street, to which the juries had awarded the prize. A prize had also been awarded to Mr. Barry, but as that gentleman had the erection of the National Gallery on his hands, he preferred that the matter should be left entirely to Mr. Street.* He was happy to tell the hon. baronet that it was far too late for the First Commissioner to attempt to reconsider the decision arrived at even if he had the audacity to attempt it. He agreed with the hon. baronet that great loss had already accrued to the nation and the Treasury by the delay which had occurred, and that being so, he did not see how matters would be mended by holding them still further in abeyance, and breaking a contract which had already been signed. Sir G. Bowyer said he had not suggested any lengthened delay. He believed that three weeks or a month would be sufficient for all that he contemplated. The vote was then agreed to, as were also the following:—730*l.* on account of Ramsgate Harbour; 10,000*l.* for the acquisition of land, &c., in connexion with the New Palace at Westminster.

* Mr. Barry very naturally objects to this statement He says:—

"The judges of the Law Courts designs declared in their final report that my design was the best 'in regard to plan,' and Mr. Street's 'in regard to elevation,' and they advised our appointment as joint architects, placing my name first in their recommendation.

At Mr. Street's request, I joined him in expressing our willingness to work together, although, having regard to the emphatic terms of the competition as to the paramount importance of plan and arrangement, the declaration of the judges might be considered, as you, Sir, have already pointed out, an award in my favour. Mr. Street's separate appointment, to my prejudice, was made subsequently, without my knowledge or consent, and in direct opposition to the advice of the judges, the finality of whose decision had been guaranteed to the competitors by a Treasury Minute as an essential condition of the competition.

The National Gallery competition was quite independent of that for the Law Courts, and it was decided by different judges. In this case I was again fortunate enough to receive favourable notice. Mr. Street, who was also a competitor, was not mentioned by the National Gallery judges. Can it be, as Lord H. Lennox seems to suggest, that a double success has actually been turned to my disadvantage, and held to justify my exclusion from the greatest architectural opportunity of the day?"

## R. I. B. A.

SIR,—It is with some surprise that I have seen so little discussion in your paper of the recent attempt to put the finances of the Institute on a better footing, and such a scarcity of suggestions for accomplishing that desirable result.

Will you, therefore, permit me to offer the following:—It appears to me to be a great mistake, in such a small and not very united community as the architects of this country, to split it up into two bodies, even when they hold their meetings in the same building (which is too suggestive of a house divided against itself); and I feel sure the influence of the profession is very much weakened in consequence. One good strong compact society would be worth more than half a dozen small ones, and I see no reason why they should not be all united under one head—probably in separate grades. The seniors might well remain "Fellows," the younger members, "Associates," and students a minor grade, with their subscriptions regulated accordingly. Honorary members could be also admitted, or a class created for amateurs and non-professionals interested in architecture, &c. On some such plan as this I believe the Institution of Engineers is founded, and this suggestion is respectfully recommended to the ruling powers of the R. I. B. A., as the most likely means of increasing the revenue and general prosperity of their society.

E.

P.S. This idea could not, of course, be carried out, unless the co-operation of the Architectural Association were obtained, but I believe it might be quite as much to their advantage as to the elder institution.

## ASSOCIATION OF MUNICIPAL AND SANITARY ENGINEERS AND SURVEYORS.

A MEETING of the district committee for Lancashire and Cheshire of the above association was held at the Town-hall, Chester. The chair was taken by Mr. J. C. Thorburn (Birkenhead), and there were also present Messrs. Matthew Jones (Chester), J. Proctor (Bolton), P. Smith (Blackburn), S. Kelsall (Stretford), George Dickinson (Pennington, Westleigh, and Bedford), J. Wilson (Bacup), A. Jacob (Barrow-in-Furness), W. H. Richardson (Tranmere), G. Watson (Crewe), J. D. Simpson (Buxton), J. Holland (Witton-cum-Twambrookes), J. Jackson (Stockport), J. Lobley (Huxley), A. Bell (Chester), A. M. Fowler (Salford), Lines (Manchester), and R. Vawser (Warrington), secretary. After formal business had been transacted, Mr. Bell, C.E., produced the plans and sections of the intercepting sewage works, and the members, accompanied by Mr. Bell, visited the main sewage works, all the details in connexion with which were explained.

On the return of the party to the Town-hall, the Chairman said that he thought Mr. Bell was to be congratulated upon the very comprehensive manner in which he had designed the works.

Mr. Lines asked Mr. Bell how long the water was to remain in the reservoirs.

Mr. Bell said it was not intended to rest, it would have a continuous flow, and be precipitated as it flowed from one end of the tank to the other.

Mr. Lines asked what would be the velocity with which it would move from one end to the other.

Mr. Bell said it would be very slow; from 2½ ft. to 3 ft. per second, and the tanks would hold about four hours' flow.

Mr. Vawser asked if each of the tanks would take four hours.

Mr. Bell said the pair of upper tanks would occupy about four hours, and one would be filled in two hours. The lower tanks were not quite so large.

Mr. Lines asked if the rate of deposit of the sewage had been calculated, and Mr. Bell said it had been calculated on general principles that it would be at the rate of about 1 in. per minute.

A vote of thanks to Mr. Bell for his lucid explanations was carried unanimously.

The next matter before the meeting was the discussion on the papers read at the Liverpool meeting by Mr. G. F. Deacon (Liverpool), on "Waste of Water," and by Mr. A. M. Fowler (Salford), on "The Utilisation of Sewage and the Water of Polluted Streams." In the absence of Mr. Deacon his paper was not discussed, but that of Mr. Fowler was at some length, especially the portion relating to the utilisation of affluent water for sanitary purposes.

The Chairman, in summing up, said the idea was a novel one, and it occurred to his mind that there might be cases, especially in large manufacturing towns, where such a process might become the only source for supplying water for that specific purpose. They knew also that the population of this country was growing at such a rapid rate, especially in the manufacturing towns of Lancashire and Yorkshire, that it would become a serious question where water was to come from to supply the towns. He thought the day might arrive when such a process might find additional supply necessary in large manufacturing towns for trade and sanitary purposes in the way Mr. Fowler suggested.

The members then proceeded to fix the place and date of their next meeting.

On the invitation of Mr. Jacob it was resolved unanimously to visit Barrow-in-Furness on Friday, the 7th of August next.

## THE TRADES MOVEMENT.

*Newcastle, Staffordshire.*—The master builders of the Potteries and Newcastle received notice in December from the operatives of an application for an increase of wages and a reduction in the hours of labour. After several meetings of the arbitrators, Mr. Balguy, late stipendiary magistrate for the Potteries, was appointed umpire. After hearing both sides that gentleman has delivered an award which gives a net cash gain to the men of 10½d. per week, and a reduction of 2½ hours in labour.

*Blackpool.*—About 60 brickmakers have struck work at Blackpool for an advance of 1s. per 1,000, to be divided among the various branches of the trade, and which would be equal to 2d. per man. Some of the masters have acceded to the demand, and the men in those instances have resumed work.

*Northampton.*—At a meeting of the joiners and carpenters, held at the Black Boy Inn, in January, it was decided to ask the employers, a Blisworth firm being also included, for an advance of three-farthings per hour, equivalent to a rise of about 3s. 6d. per week. A number of the employers had expressed their willingness to give a halfpenny per hour advance to their best hands. That offer was accepted; but it was resolved that the advance should apply to all grades of workmen. Happily a general strike has been averted. The men determined that those to whom the employers would give the advance should immediately resume work. A large number did so; in fact, there was only one firm that declined to give the advance to the whole of the men they employed, and that firm gave the advance to a majority of them. The strike was pretty general, but by the middle of the week nearly sixty men had "gone in."

## FALL OF HOUSES IN NEWGATE-STREET.

ON Tuesday last two houses in Newgate-street fell. The premises in question, Nos. 27 and 28, were, with two adjoining houses, 26 and 29, sold on Friday last week, by Messrs. Horne & Eversfield, for the purpose of being pulled down. None of the four had been inhabited for some time, but the purchasers of Nos. 27 and 28 had upon them a gang of men to commence the work of demolition. This was not in a very advanced state, as the roof only had been partially removed, but some of the interior fittings in the lower stories were being operated on at the same time. Engaged on this work there were nearly twenty men and boys about the buildings in the course of the morning, while three only were on the roof. Michael Finn, one of the men employed, who was on the pavement in front, observed indications of the approaching fall, and he immediately raised an alarm for those who were inside to make their escape. Scarcely had they begun to act on his warning when the whole of the two buildings fell in, carrying with them all but one man, who clung to the roof of No. 26, and was subsequently rescued uninjured. The other two who had been with him came down with the ruins, and walked off the fallen materials scatheless. But there yet remained several less fortunate behind, towards the deliverance of whom the attention of the workmen was soon directed. The salvage corps worked gallantly in the same direction, and all were taken out, and at present no death has occurred.

As soon as all the sufferers were released, the rubbish, which had fallen out into the street, without injuring a single passer-by or vehicle, was removed, and the shoring-up of the adjoining houses was effected.

Mr. Mason, a solicitor, of No. 30, Newgate-street, whose office looks on to the condemned houses, states, that having for some time had great fears for his own safety, from the dangerous appearance of these houses, he drew the attention of the City authorities to the fact.

## CHANCELLOR OF EXCHEQUER ON SANITARY AND OTHER IMPROVEMENTS.

IN making his financial statement Sir Stafford Northcote said:—"What is it that the people mostly stand in need of? I venture to say that those who have paid the most attention to the condition of the people will admit that there are few objects of greater importance than the improvement of their dwellings—the improvement in sanitary arrangements—an improvement in their education in the highest and best sense of the term, and an improvement in the encouragements we can offer them for the adoption of habits of temperance and providence. It seems sanguine to say that these great objects can be attained by legislation, but undoubtedly by wise legislation they may be very considerably promoted, and it is a truth of which we, at all events, feel strongly convinced, and which, I think, will not be slow to commend itself to the minds of others, if we are really to deal with questions of the character to which I have just adverted—you will deal with them, and can only deal with them satisfactorily, through local action. We shall do very little to improve the dwellings of the people without calling to our aid the assistance of all local authorities; we shall do very little, or nothing, to improve the sanitary arrangements without these; we shall do and we do very little for education without calling in the aid of local administration; and with regard to the great question of the encouragement of providence, I speak rather feelingly, because I have for the last three years been sitting with other members of this House upon a commission which has been inquiring into the important subject of the friendly societies and other provident societies of this country, and we have arrived unanimously at the clear and strong conviction that if anything can be done to fully develope these institutions, and encourage among the people true and sound habits of providence, it can only be done by a system of concerted local action. I am sorry to say that the report is not yet in the hands of members; but it will be in a very few days; and they may take it from me that the main gist of our recommendations is the constitution of a system of local arrangements by which a great improvement will be made in these institutions."

## LONDON SEWAGE AND SEWAGE OF TOWNS.

SIR,—So long ago as March, 1855, I addressed you relative to the above subject, and then suggested that the sewage should be taken on to the waste lands of Surrey instead of directly into the Thames, as then proposed, and as since carried out.

Further consideration of the subject has led me to confirm my opinion, not only for London, but for the towns on the Thames valley, the authorities of which are at their wits' end to know what course to adopt, and the sewage from which is very properly forbidden entrance into the Thames by the conservators thereof. I would also include other towns where drainage is necessary, and where is it not? What I now propose is, that one or more lines of general outfall sewer should be constructed from the edge of the metropolitan area, and even within it, through the southern counties, direct into the sea on the south coast, gravitation being assisted by pumping stations where necessary. One advantage would be this, that it could be tapped at any point, and irrigation could be carried on to a large extent along the route, without danger of spreading typhoid by reason of the juxtaposition of human habitations; and when farmers did not require the fluid, which is a great matter, it could flow on its way to supply others, or be lost in the sea. There would also be ample scope for experimenting on precipitations, deodorisations, and filtrations, of all kinds in suitable situations. Every town using the outfall would pay an annual rent for the privilege of getting rid of its sewage, and farmers for using it. So that I do not see that the financial part need be an insuperable difficulty. Government aid must of course be sought, and every year appears to me to render such a scheme more and more imminent.

THOS. GOODCHILD.

## LIABILITY OF LANDLORDS AND NOT TENANTS FOR INSECURE PIPING.

AT the last sittings of the Durham County Court, a case was decided of some interest to landlords of dilapidated or insecure houses.

The action was brought by a person named Jackson, against Mrs. Sarah Boyd, the owner of a tenement rented by a Mr. Lovegreen, the latter being sought to be made liable for an accident, by his landlady.

The plaintiff stated that, whilst passing the house owned by Mrs. Boyd, he was knocked down by a large piece of metal piping. The piping was a portion of the "downcomer" of the spouting of Lovegreen's house. The "box" also fell with the metal piping. His shoulder was injured, and he was taken to the county hospital, where it was dressed. He was an out-patient for six weeks, and unable to work. He was earning 1*l.* 10*s.* a week at the time he was injured, and now claimed 10*l.* damages for his loss of time, forgiving damages for the pain he had suffered. The middle of the "downcomer" had been hanging loosely some days before it fell. Mrs. Boyd wanted the tenant to pay for the damage, and denied her liability, offering him 5*s.*, which he refused.

Mr. Lovegreen, the tenant of the house, said he made no agreement when he took it to keep the spout in repair. He sometimes paid his rent to the defendant, and at other times to her son.

Counsel for the defence urged that the wrong person had been sued.

The Judge.—Can you point out any authorities on the case?

Counsel.—I have no authorities on the matter. Perhaps you will adjourn it to enable me to make a search.

On the next day, defendant's counsel intimated that he had searched for cases bearing on the point, but had not been able to find any.

The Judge (Mr. E. J. Meynell).—I did not expect that you would. The defendant is liable to keep the premises in repair, and I give judgment for the plaintiff for 8*l.*, with costs of witnesses and attorney.

## BUILDING ACT CASES.

### SURVEYOR'S FEES.

JOHN BUTTERICK was summoned, before Mr. Bridge, Hammersmith, by Mr. Knightley, district surveyor of Hammersmith, for the sum of 4*l.* 5*s.* for fees.

The defendant said he was not the builder, but he did the carpenter's work to the houses, and he could not afford to pay the fees.

Mr. Knightley said there had been a change of builders to the houses 20 and 21, George-street, Latymer-road, and at the time the defendant gave notice to finish them he was told that he would be liable for the fees. He (Mr. Knightley) had been referred from one to another, and at last he was obliged to summon the defendant.

Mr. Bridge said the defendant had signed the notice stating that he had become the builder. He made an order upon him for the payment of the fees and 2*s.* costs, and said he could recover from the builder.

Josiah Moore was summoned for 2*l.* 5*s.* fees in respect of 58, Southerton-road.

Mr. Knightley said he could not find the builder. He was obliged to summon the occupier, who had his remedy against the landlord.

The defendant said he was not the occupier. He was only a lodger.

Mr. Bridge said a lodger was not an occupier.

Mr. Knightley submitted that if a man built houses and let them out in tenements, he (Mr. Knightley) had power to go against one, who could deduct the fees from the rent.

Mr. Bridge said an occupier meant a person who was the occupier of the whole building, Mr. Knightley seeking to recover his fees from the whole house. He dismissed the summons with costs to the defendant.

## SCHOOL BOARD SCHOOLS.

*Chelsea.*—The opening of another new Board school, situated in Crook's-ground, Chelsea, has taken place. The Rev. Canon Cromwell, who occupied the chair, was supported on the platform, among other gentlemen, by the Parliamentary representatives (Sir C. Dilke and Mr. W. Gordon). The building is in close proximity to the new embankment, and when complete in all its details, will be replete with the requirements of a well-appointed school. At the request of the chairman Mr. Wheeler furnished a brief sketch of the history of the school, and the circumstances which led to its being placed under the direction of the Board. The average attendance for the past quarter amounted to 331. In the course of his address the chairman remarked that it was not their intention to interfere with or injure any other efficient schools in the neighbourhood. They, therefore, regretted the action of the parents who, in some instances, were withdrawing their children from other schools and transferring them to the Board school. The boys' school was quite full, and the benches were occupied by boys who had not

a prior claim on the attention of the Board. Speaking roughly, he calculated that the cost of the building when completed would amount to about 8,000*l*., and although some buildings had been erected at less expense he thought the schools were quite worth the money. Before handing over the keys, Mr. E. H. Currie, in the course of an address which had reference to the work of the School Board, stated that the building would accommodate 619 children, and the possession of over half an acre of ground allowed of there being a large space reserved for a play-ground.

*Nottingham.*—The first set of Board Schools erected in this town has been opened in Bath-street. The buildings consist of a two-story boys' and girls' school, and one-story infants' school, occupying a site of about 2,500 square yards, fronting Bath-street and Virginia-street, in close proximity to the public recreation-ground. The boys' and girls' school-room has a floor space of about 3,200 feet superficial, respectively, including class-rooms, giving accommodation for upwards of 300 children in each department, calculated at ten square feet per child, exclusive of entrance lobbies, lavatories, and teachers' private rooms. The infants' school-rooms have an area of about 2,300 superficial feet, and will accommodate 250 children, also exclusive of entrance lobbies, lavatories, and private room. No school-room in the building is less than 16½ ft. high. The rooms throughout are warmed by means of hot-water pipes circulating from one boiler, consequently there are no fireplaces in any part of the building. In addition to every window having a casement to open, there are ventilating flues through each department. The several entrances for boys, girls, and infants are separate, that for the boys being at the south-east end of the main building, those for the girls and infants next Virginia-street. The desk fittings are by Coleman & Glendinning, of Norwich, being arranged on the dual plan, *i.e.*, one desk for every two boys, with narrow passages between each group of desks, giving the teacher access to every boy without passing behind him. The lavatories have Macfarlane's iron fittings. The out-offices are arranged on a new plan, possessing, it is said, the cleanliness of the ordinary water-closet without the frequent liability to get out of order, the flushing arrangements being of simultaneous action throughout under the control of the care-taker, whereby a large volume of water is passed through the closets into the drain. The chief contractor was Mr. John Rushworth, of Nottingham, his sub-contractors being,—Mr. Wheeler, for the plumbing, glazing, gasfitting, and heating arrangements; Mr. Dance, for the joiner's work; and Mr. McPherson for the stonework. Messrs. Evans & Jolley are the architects.

## CHURCH-BUILDING NEWS.

*Burton-on-Trent.*—A new church, dedicated to St. Paul, has been built and presented to the town by Mr. M. T. Bass, M.P., the brewer, as was recently noticed, briefly, in our columns. It has just been consecrated. The foundations were commenced in 1865, but in consequence of a quicksand being tapped, the whole area of the church had to be excavated and filled in with concrete in some places, as for instance beneath the tower piers, to a depth of 17 ft. The general level of this bed of concrete is about 7 ft. below the surface of the ground, and the foundations for the walls and piers are built upon it and brought up to the surface in solid brickwork, averaging 4 ft. 6 in. in thickness for the walls, and 12 ft. in thickness for the tower-piers. Another layer of concrete 6 in. thick forms the foundation for the cement and tile pavements. The foundations and the laying out of the roads surrounding the churchyard involved an outlay of over 6,000*l*. The church, which is built from the designs of Mr. James M. Teale, of Doncaster, architect, was commenced by Messrs. Critchlow & Ward, of Uttoxeter, the contractors, in August, 1870. The general style of the church is Early Decorated, and it consists of nave and aisles, north and south transepts, north and south chancel and chancel aisles cruciform on plan, with the tower in the centre at the crossing of the transepts. The total length is 144 ft. within the walls from west to east, and 88 ft. across the transepts from north to south. The nave consists of six bays, is 74 ft. in length and 52 ft. 6 in. in width including the aisles (the clear width between the arcading being 23 ft. 4 in.), and 60 ft. in height to the ridge. The seats throughout the church are intended to accommodate 646 persons, and chairs have been provided for 180 additional, giving a total of 826 seats. It is the intention of Mr. Bass that the whole church should be free. The exterior of the church gives more the idea of solidity than of elaboration. The walls are faced with Coxbench stone; each stone scappled in one direction—contrary to the usual custom hereabouts of scappling each stone in quarters, and with all quoins and other ashlar work in Ancaster stone. The tower in the centre is the chief feature. It is 123 ft. in height to the top of the pinnacles. The belfry stage consists of three windows on each face, with traceried heads and filled in with thick glass louvres. The tower is finished with an open parapet and crocketed pinnacles 20 ft. in height, with a large gargoyle at each angle. The roof is covered with lead. The church is surrounded by a boundary wall in Stanton stone, with large stone piers about every 10 ft., the intervals being filled with iron fencing, cast from the architect's designs by Messrs. Morgan, Macnulay, & Waide, of Rotherham. The gates (to match) are hung from large octagonal stone piers, with gableted capitals surmounted by lamps. The entrances are all paved with Yorkshire stone and Stanton curbs. The churchyard is turfed. Generally speaking, the whole of the foregoing work is executed in Coxbench and Ancaster stone, the whole of the interior being worked in Ancaster stone. All described has been executed, with exceptions, by Messrs. Critchlow & Ward, with Mr. H. Kershaw and Mr. W. Gould as foremen, and the carving by Mr. S. Tinkler, of Derby. The contracts carried out independently of the general contract are as follow:—The lighting, by Mr. R. Crosskey, of Lichfield, consists of a row of jets above the string-course, immediately below the clearstory windows; the heating, by Messrs. Stuart & Smith, Sheffield, is accomplished by means of a large Gill stove, in a vault under the north transept, which draws the air out of the church by three large downcast flues, and sends it back reheated by seven smaller ones. This has been in action daily for about six months, and has been of great assistance in drying the church. The bells were cast by Messrs. Taylor & Son, of Loughborough, according to a specification prepared by Mr. E. B. Denison, Q.C., and are in the key of F. Their total weight is 101 cwt. 1 qr. 7 lb., the tenor bell, 52 in. diameter,s being 25 cwt. 3 qrs. 21 lb., and the treble 6 cwt. 2 qrs. 4 lb. The lightning-conductor, fixed by Messrs. Gray & Son, of Limehouse, is elaborate in principle, the chief idea being to put every piece of metal about the building, and all the crosses and pinnacles (being the most elevated points) in electrical connexion with the earth, and to accomplish this copper bands are carried from the top of each cross, &c., along the top of the ridge-tiles of the roof, and connected with the main conductor, which consists of a large copper tube. Small off-sets connect all the spouting and leadwork in the same manner. The east window, of stained glass, was by Messrs. Hardman, of Birmingham, the Life of Christ being the subject carried through the lights, with the twelve Apostles in the traceries above. The wrought-iron screens were by Messrs. Skidmore, of Coventry, from their own designs. The tiling of the floors was designed, manufactured, and laid by Messrs. Minton, Hollins, & Co., of Stoke-upon-Trent. The sacrarium is laid with a special design (the whole of the tiles being designed and modelled expressly for this church), and illustrates, in seven panels, scenes from the life of St. Paul. The three centre panels are laid in mosaic. The organ was built by Messrs. Hill & Son, of London. The whole of the building and its contents and foundations complete, as described, have cost about 36,000*l*., entirely borne by Mr. M. T. Bass, who will also endow the church with 400*l*. per annum, and has lately accepted tenders for the building of a parsonage adjacent to the church for 2,500*l*. The total sum expended at the completion of the parsonage and schools, with the building and endowment of the church, will probably reach 50,000*l*. Mr. Reginald Churchill acted as clerk of the works throughout the construction above-ground.

*Barmston, near Hull.*—The parish church of All Saints, Barmston, near Lowthorp, Hull, has been re-opened after restoration. The chancel has been re-roofed, the stonework of windows renewed, and credence, piscina, sedilia, &c., provided. The floor, which has been raised to give greater dignity to the altar, is paved with Minton's tiles, and the foot-pace to the altar with polished marbles. The windows are for the present glazed with cathedral glass, but it is intended to fill them with stained glass as soon as the necessary funds are obtained. In the nave and aisle, the walls have been restored, the old pewing, wood flooring, and pulpit removed, and the entire floor paved with red, black, and buff Staffordshire tiles. The whole of the fittings are new, comprising oak altar, oak stalls for priests and choir, oak lectern and fald-stool. The church is seated with movable open benches of white pine, with oak capping and bench ends. The pulpit is also of white pine. The altar, with its frontal and furniture, was supplied by Messrs. Jones & Willis. The builders employed were Mr. Thomas Barr, of Beeford, and Mr. John Lister, of Ashton, near Rotherham, under the direction of Mr. Hugh R. Gough, architect, London.

*Haughton Dale.* — The foundation stone of the new Church of St. Mary, Haughton Dale, near Woodley, has been laid. The church will seat 400 adults, and the plan comprises nave, south aisle, north and south porches, chancel, and chancel aisle. There is also an octagonal bell turret rising from the ground, the lower story of which will be used for a baptistry. The construction is that of many old buildings in Lancashire and Cheshire, namely, oak framing, filled in between with cement. The roofs will be covered with tiles. The chancel fittings will also be of oak, and those for the rest of the church of pitch pine. Everything is contracted for as the best of its kind. Mr. Thomas Wharam, of Hyde, is the builder, and his estimate is for 2,398*l*. The architects, Messrs. Medland & Henry Taylor, of Manchester, have recently enlarged the ancient mother church in the same parish.

## Books Received.

*The Hygiene of Schools; or, Education Mentally and Physically considered.* By J. B. BUDGETT, M.D., &c. London: Lewis, Gower-street. 1874.

THE object of this little work is to set forth opinions of recognised authorities on this subject. Food, exercise, clothing, sleep, recreation, and punishment, all pass rapidly in review; as well as the important elements of air, light, heat, and ventilation, in their influence to produce health on the one side and deformity on the other. This latter still prevails to the alarming extent of more than 40 per cent. in girls and 20 per cent. in boys, in the forms of high shoulders, spinal distortion, and so on, and it is evident that the School Board is only one step in the right direction, which must ultimately and certainly lead to the appointment of a minister of public instruction.

## VARIORUM.

THE Railways Amalgamated and Grouped in competing systems: — A paper read by B. Haughton, C.E., before the British Association at Bradford in 1873. King, Parliament-street, London. This paper groups the railways into the four competing systems which Mr. Haughton names,—the London and North Western, the Great Northern, and Midland groups, and the Great Western. The three former are competitive, north and south, and the last to a certain extent also north and south, but mainly east and west. The arrangement and regulation of these groups, both competitively and by amalgamation, by help of State interference, are the main object of the paper.

**Mediæval Pottery in Nottingham.** — Some discoveries which have been made prove that the manufacture of pottery was carried on in Nottingham at a much earlier date than is generally supposed. As men were excavating on the site of the old Parliament-street Chapel, at the lower corner of George-street, says Mr. A. J. Sulley, in the local *Guardian*, they came on an old kiln, in and near which they found jars, jugs, and flat-bottomed pots of Mediæval manufacture, and all of a red clay body, with the upper portion of the outside covered with green salt-glaze. They afterwards found three other kilns, and more pieces of the same description, and a number of fragments of encaustic tiles, with coats of arms, and one or two with inscriptions. Mr. Sulley is of opinion that the works must have been in existence as early as the latter part of the fourteenth century.

## Miscellanea.

**The Accident at the Alexandra Palace.** At the inquest respecting the death of Abraham Branch, aged 27, late proprietor of the Lord Clyde, West-green, Tottenham, who died in consequence of an accident at the Alexandra Palace, on the 17th ult., it appeared that the supports at the southern extremity of the Palace suddenly gave way, and the bricklayers at work on that part of the building, including the deceased, were buried in the *débris*. Richard Dowling, a plasterer, superintending the portion of the work in question, deposed that, in his opinion, the materials were of excellent quality, and the construction was good. Mr. Barnard, foreman plasterer, stated that the cornice was completed on the early part of Tuesday morning, and in consequence the struts were removed. Mr. James Edmeston, architect, said that, acting upon the instructions of the coroner, he had examined the scene of the disaster, and found that the concrete was unusually strong. The materials employed in the construction of the cornice, judging from the portion left standing, were of good quality. Up to the core of the cornice the material used was mortar, and the bricks were placed on edge. In his opinion it would have been better to put them flat. The vibration inseparable from the construction of such a large building must have affected the work and caused a fissure. He believed the cement was thoroughly set. The accident was caused by some invisible defect, and by the scaffolding on which the cornice fell resting on a wall not sufficiently strong to bear it. The jury returned a verdict of "Accidental death."

**Portsmouth Dockyard Extension.**—Works of considerable magnitude are in process of construction, both at Chatham and Portsmouth, with the object of increasing the productive and repairing powers of these two yards, and it is expected that a considerable part of the Portsmouth Dockyard Extension will be available for the public service in the early part of 1875. Portsmouth Dockyard will be more than double its present size. The area of the yard, as we now know it, is 115 acres; it will then be 293 acres. Of the 178 acres thus added, 94 acres (principally basin accommodation) represent what, when the works were begun in 1866, was mere mudland, which was left uncovered at every tide. The scheme for the extension provides for the construction of four basins. From 700 to 800 convicts have been continually employed upon various tasks. The brickmaking, in particular, has been carried on entirely by them, and more than 130,000,000 of bricks have been made and used since the works were commenced. The bricks are made from clay obtained on the spot, and the average production is about 20,000,000 a year. It may be noted that the rise in the price of coals has added about 7*s.* per 1,000 to the cost of the bricks. The total estimate for the completion of the work was 2,207,000*l.* Of this sum 1,983,800*l.* have been already voted, and up to the 31st December last 1,633,633*l.* had been spent.

**American Pottery.** — Attention in the United States is drawn to this subject by the *New York Tribune* in a long article. The writer of it says:—The decrease in imports this year shows that home products are rapidly taking the place of foreign in the American market. This is most apparent in the iron industry, but is likewise very evident in that of earthenware, which has been growing steadily. Potteries have been established in Trenton ever since 1852. Trenton may be considered the seat of the American pottery business. At present there are at Trenton twelve firms with fifty kilns, who manufacture the white wares, the c. c. and w. g. of commerce; one firm with four kilns manufacturing Rockingham and yellow; and one firm with two kilns making porcelain hardware trimmings. In New York City c. c. ware is made by one firm with four kilns, and yellow-ware is made up the Hudson not far from the city, and at Geddes, a suburb of Syracuse. In Ohio, at East Liverpool, south of Pittsburgh, there are fifty kilns owned by thirteen firms engaged in making Rockingham and yellow. Should the public eye become tired of the monotony of plain white ware, the chances are that the American manufacturers would receive a severe blow. This is not a baseless fear. There are signs abroad that such a change is anticipated.

**Leicester-square Improvement Bill.**—This is a Bill promoted by the Metropolitan Board of Works to obtain compulsory powers to purchase the land in Leicester-square, and to throw it open to the public for recreation. The Bill was brought before a select committee of the House of Commons, Mr. Waterhouse in the chair. Mr. Rodwell, in opening his case, said that only one-fourteenth of fourteen-fourteenths was in the possession of Mr. Scaife, the only person who opposed the Bill, and no one else had interposed any difficulties. Mr. Albert Grant possessed now all but three-fourteenths of the land, and had offered to make the whole of it over to the Board of Works for the public use. It was suggested by the petitioner that there was some "collusion" between the Board and that gentleman; but such was not the case. Independently of Mr. Grant's offer, the Board were prepared, should power be given them, to proceed with the improvements, and convert the land into a place for public recreation and amusement. Mr. O'Malley contended, on behalf of his client, Mr. Scaife, that the proposed garden would attract a large number of immoral persons thither, and would not be a boon to the public. The Committee in a short time approved the preamble of the Bill, and proceeded to deal with the clauses.

**The Pianoforte Nuisance.**—The *Leisure Hour* says justly:—Many a studious literary man, and many a quiet family, have been driven from their homes, and compelled to seek shelter elsewhere, by the persecution of the piano next door or over the way. In London—and the case is even worse in some of the large towns in the provinces—the parting-walls of the houses are so thin that every note struck on the piano can be heard by the adjoining neighbours. So it will happen that a nuisance utterly intolerable is set up, for which there is no remedy but flight. Think of Mrs. Robinson's four or five daughters thumping away at the keyboard the whole morning long, and perhaps all the afternoon as well, practising at the scales for hours together, or blundering at a crabbed passage day after day, week after week, and month after month, and persistently reading it wrong the whole time! Nor, indeed, is the case much improved if the everlasting practice is ever so good. The plain truth as to this matter is, that no one has a right to inflict this suffering on his neighbour. People who are determined to practise incessantly are bound to manage it without annoying those who live near them.

**The Great Steam Hammer.**—The completion of the stupendous steam hammer erected at the Royal Gun Factories, Woolwich, for the manufacture of the great artillery of the future, is announced. At the first trial it worked with perfect ease, and the big steam cranes, each lifting 80 to 100 tons, swung round with the utmost freedom. Although it has been described as a 30-ton hammer, the weight of the falling portion is really within a few pounds of 40 tons, and the force of the falling weight is accelerated many times by the use of steam to drive it down from the top. It has been allowed a striking fall of 15 ft. 3 in., and nobody has yet determined what is the actual force of the blow it will strike. It has cost altogether about 50,000*l.*, the greater part of which has been paid to Messrs. Nasmyth, Wilson, & Co., the patentees and manufacturers. One of the furnaces is large enough to make a comfortable dwelling-house, and an omnibus might be driven in at the doorway. The Emperor of Russia is expected to visit the Arsenal about the third week in May, when the heaviest portion of an 80-ton gun will be welded by this hammer in his presence.

**Proposed Purchase of Birmingham Gasworks by the Council.**—A meeting of the ratepayers of Birmingham has been held to authorise the purchase by the Town Council of the works and business of the Birmingham and Staffordshire Gaslight Company, and the Birmingham Gaslight and Coke Company. The Mayor occupied the chair, and moved a formal resolution empowering the Council to make the necessary application to Parliament. The resolution was carried. A poll, however, was demanded, and less than 2,000 persons out of about 53,000 entitled to vote took the trouble to go to the polling-places to record their votes, but the result has been a large majority for the resolution of the Council.

**The Peterborough Pulpit.**—The memorial pulpit of which we gave a view last week was executed by Messrs. Field, Poole, & Sons, of Westminster.

**A Novelty in Preparation at the Alexandra Palace.**—An instructive exhibition is being prepared at Muswell Hill. It is to consist of a series of models of the "characteristic dwellings" of different countries in the world, occupied by groups of living figures representing their inhabitants in the actual clothing of the country and surrounded by the ordinary furniture and domestic arrangements of the household. The idea originated with Sir Edward Lee, the chief director of the palace; and Dr. Dresser, who is carrying it into effect, has already constructed full-sized models of a modern Moorish and a modern Egyptian house. These were the subject of a private view on Saturday, and appeared to give satisfaction. The first represents the dwelling of a middle-class, or rather a superior, man in Morocco, and is an exact copy of a modern Moorish villa. The interior of the Egyptian villa is copied from an example in Cairo. The two houses have been built by Mr. Tooth, and the carpets have been supplied by Mr. Vincent Robinson.

**Retrospective Fine Art Exhibition in Paris.**—The Retrospective Exhibition at the Palais Bourbon is by far the most complete of the sort that has ever been held in Paris. The exhibition, is due to a suggestion of the Duc d'Aumale. The idea was borrowed from the Fine Arts Galleries of the Manchester Exhibition held some fifteen or sixteen years ago, of the Universal Exhibition of 1862, and latterly of the South Kensington Museum. It has been got up ostensibly under the auspices of Comte d'Haussonville, the Duc de Broglie's brother-in-law, for a patriotic purpose. The proceeds of the sale of tickets will go to assist Alsatians and Lorrainers of narrow means desirous of emigrating to Algeria. More than a thousand first-class pictures, representing every school, have been sent to the patriotic committee, of which Comte d'Haussonville is the president. The pictures, tapestries, rare old furniture, and curiosities forming the exhibition fill two long galleries and twelve spacious reception-rooms.

**The Horse Show at Manchester.**—The preparations at Pomona Gardens are rapidly approaching completion, and all the arrangements are on a scale of magnitude never yet attempted in the northern counties. The stabling affords accommodation for 600 horses. The shed, which is built with brick, with slate and glass roof, is staked off in loose boxes. Each stall is 6 ft. wide by 9 ft. deep, with rack and manger complete. The whole building is divided into lays, each of which is lighted with a longitudinal dome light, and measures 62 yards long by 36 ft. wide and 32 ft. high. Each lay is provided with gas and water specially laid on, and conveniently at hand is the forage department. The demands for space are more numerous than can be met.

**Preparations for the Destruction of Durham Cathedral.**—A gentleman writes stating that a few days ago, while visiting "Durham's massy fane," he found, to his astonishment, a large coke fire in an open brazier, standing, upon three legs, upon the woodwork of the belfry. No one was by it. Upon searching for the origin of this strange phenomenon, the gentleman found a small army of plumbers upon the roof; and on speaking to one about the great danger of having an open brazier of live coke upon the woodwork, he coolly said they had some water in case of fire, which consisted of two buckets half-filled with water. To make the destruction still more certain, behind the reredos was stored about half a ton of shavings, with about one hundred planks of wood. Such gross carelessness needs no comment.—*North London News.*

**The New Law Courts for Liverpool.**—We understand that the negotiations for the sale to the Government of the piece of land behind the Municipal-buildings, as a site for the new Law Courts, have terminated in the purchase of the land by the Government. The Government had formerly offered to purchase 2,100 yards of the land in question at 9*l.* per yard, with the option of taking the remainder of the plot at 10*l.* per yard; but the Finance and Estate Committee of the Council demanded 9*l.* 10*s.* per yard, and at one time it seemed probable that the negotiations would fall through, and that another and less convenient site would be selected. The sale has now, however, been effected on the terms the Government first offered, and, no doubt, the Town Council will ratify the bargain concluded by the finance committee.

**Mr. John Kelk.**—It is stated that her Majesty has conferred a baronetcy upon Mr. John Kelk, the contractor. Mr. Kelk represented Harwich in the House of Commons from 1865 to the dissolution in 1868; and erected under peculiar circumstances the Albert Memorial, Hyde Park. Mr. Kelk is a son of the late Mr. John Kelk, of London, and was born in the year 1816. Having made a large fortune by his professional enterprise in the days when such fortunes were frequently made by railway contractors, he purchased Bentley Priory, formerly occupied by the Duke of Abercorn, about twenty years ago. He is a magistrate, and deputy-lieutenant for Middlesex, and holds a commission as major in the Engineer Volunteer Staff Corps.

**Accident at the Dublin Gas Works.**—A serious accident to life and property has occurred at the Dublin Alliance and Gas Consumers' Works. The new retort-house, the roof of which had suffered severely from the gales of last winter, was undergoing repairs, under the direction of Mr. Waterfield, C.E. Four men were engaged on the roof, when suddenly the principals gave way, and the entire roof, 325 ft. long and 60 ft. wide, fell in. Two of the men who were working outside were precipitated from a height of about 20 ft., and, by the falling of the metal principals and heavy iron pipes, received such injuries as render their recovery hopeless. They were conveyed to Sir P. Dun's hospital. The damage to the property is very considerable. One of the injured men died. The others are progressing favourably.

**The Surveyorship of Macclesfield.**—The committee met to go through the testimonials of the applicants for the office of borough surveyor, vacant by the resignation of Mr. Aspinwall. There were twenty-five applications for the situation. The following four persons have been selected as most suitable:—Mr. C. F. Mike, surveyor's office, Leicester; Mr. Joseph Dawson, surveyor's office, town-hall, Salford; Mr. J. B. Jerram, city surveyor's office, town-hall, Manchester; and Mr. O. C. Robson, surveyor's department, town-hall, Stratford, London, E. These will be communicated with, and asked to attend the next meeting of the committee, when one of the four will be selected and recommended to the council.

**Society for the Encouragement of the Fine Arts.**—At a meeting of the Society for the Encouragement of the Fine Arts, 9, Conduit-street, on Thursday before last, Mr. George Browning read a paper on "German Poetry and Art." Dr. Doran, F.S.A., occupied the chair. The lecturer divided the poetry of Germany into three periods—ancient, mediæval, and modern,—dwelling more particularly upon the third or Golden period, of which Goethe, Schiller, and Heine were the chief representatives. With regard to German art, Mr. Browning made some appropriate remarks on the great loss art had sustained by the recent death of Kaulbach, perhaps the greatest artist of modern times.

**Fall of a Crane.**—A very serious accident occurred at Newcastle last week. The Civil Service Stores are in course of erection, and three men were engaged in building the chimney when a large crane suddenly gave way. It threw down the scaffold on which the men were standing, and two of them were thrown to the ground. One man died almost immediately, and one of the others received injuries of so serious a nature that they have since resulted in his death. The third man saved himself by clinging to the chimney when the scaffold gave way. His strength enabled him to climb to the top, and he sat there until it was possible to take him down.

**Action for an Inch and a Half of Land.**—The *San Francisco Chronicle* says:—On Monday afternoon, in the Fifteenth District Court, a judge, a clerk of the court, a sheriff, a short-hand reporter, three lawyers, a plaintiff, two defendants, and six witnesses, assisted by an audience of outsiders, consumed half a day in determining who owned a piece of ground an inch and a half wide, and in 30 ft. running down to nothing. The land was in the rear of a lot on Tehama-street, and worth at the utmost not exceeding five dollars. The Court told defendants to go in peace, and made plaintiffs pay the costs.

**The Royal Academy.**—The exhibition is an interesting one, and comprises 1,624 works. In accordance with the desire of the Council, we postpone our review till next week.

**The late Mr. John E. Gill, Architect.**—An effort is being made in Bath, the residence of the late Mr. Gill, to set up a stained-glass window in the Church of St. John Baptist, Bathwick, where Mr. Gill was a constant worshipper, as a memorial of him. The cost is estimated at about 210*l.*, rather more than one-half of which sum has already been promised by fellow-citizens and other friends. It is thought that some members of the Institute of Architects may desire to join in this token of respect for one of their late Fellows.

**Dr. Schliemann and the Trojan Discoveries.**—A Bordeano telegram from Athens states that Dr. Dethier, the director of the Imperial Museum at Constantinople, has applied, in the name of the Turkish Government, for a sequestration of such of the antiquities found by Dr. Schliemann in the Troad as have been removed by the discoverer to Greece. Dr. Dethier made the application with a view to the consignment of the objects in question to the Turkish National Museum, but the Greek tribunals have decided it to be inadmissible.

**The Proposed Tunnel between France and England.**—The Council-General of Arras has approved the conclusions of the report upon this tunnel. The report states that all diplomatic difficulties have been overcome. The Northern Railway Company will furnish 40,000*l.* for France, and the South Eastern Company a similar sum for England, towards the construction of the preliminary works, on condition that the preference be given them in granting the concession.

**Testimonial to the Marylebone Vestry's Assistant Surveyor.**—At the last meeting of the Marylebone Vestry Mr. Edwards moved the adoption of the report of the paving committee, recommending the Board to present Mr. Hallett, the assistant surveyor, with a cheque for 60*l.*, for the service he had rendered to the parish during the interim between the death of Mr. Browning and the appointment of the present surveyor. This was agreed to.

**High Tides.**—Captain Saxby calls the attention of landlords to waterside property, in time to guard against the more frequent and threatening occurrence of high tides which will certainly happen in March, April, May, June, and July, 1875. Captain Saxby complains that his prognostications have not hitherto been paid for by the Government, and he threatens to strike if his services are not substantially rewarded.

**Monument.**—The first contract for the erection of the monument to Dr. Pierce, of Denbigh, has been let to Mr. Rhydwyn Jones, of Rhyl, for five hundred and eighty pounds. The bas reliefs and statue of the Doctor are not included in this sum. The monument has been designed by Mr. Martin Underwood, architect.

**A Memorial of the late Rev. Thomas Binney** has just been erected in the Weighhouse Chapel, of which he was forty-two years pastor. It takes the form of a stained-glass window, and has been supplied by S. Gibbs & Moore, of London. The subject is after Raffaelle's cartoon of "Paul Preaching at Athens."

**Roundabout.**—The following is an Irish way (clear and yet embellished by imaginative language) of denouncing an unsafe public building:—"Some of these fine days the public will wake up in the basement under about 14,000,000 pounds of brick and mortar, and find themselves all dead corpuses."

**Drainage in Reigate.**—Mr. Grantham has been engaged by the Corporation of Reigate to examine and report upon the state of the sewer leading from that town to Earlswood Common, and to estimate the cost of putting it into working order.

**The New Railway Station at York.**—The tenders for the construction of the new railway station at York were considered at a meeting of the directors of the North-Eastern Railway at Newcastle on Friday last, when that of Messrs. Keswick, builders, of York, was accepted.

**Peterborough.**—The designs of Mr. William Eve, of London, have, in a limited competition, been selected by the Directors of the Stamford, Spalding, and Boston Banking Company, for their intended new bank in this town.

**Old Hall and Assize Courts, Winchester.** The restoration of the Purbeck marble shafts is in the hands of Mr. G. P. White, of Pimlico.

## TENDERS

For villa residence, Steele's-road, Haverstock-hill, for Mr. Alex. Maclean. Messrs. Batterbury & Huxley, architects. Quantities supplied:—

| | |
|---|---|
| Axford | £2,295 0 0 |
| Cullum | 2,286 0 0 |
| Nightingale | 2,210 0 0 |
| Linzell & Son | 2,163 0 0 |
| Kelly, Brothers | 2,150 0 0 |
| Manley & Rogers | 2,093 0 0 |
| Newman & Mann | 2,016 0 0 |

For building a pair of semi-detached villa residences at West Ham, for Mr. G. Marshall:—

| | |
|---|---|
| Charlton & Martin (accepted) | £970 0 0 |

For the erection of three cottages at Leybourne, for Sir Joseph H. Hawley, bart. Mr. George Friend, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

| | |
|---|---|
| Avard | £1,329 0 0 |
| Gray | 1,156 0 0 |
| Clements & Wallis | 1,151 0 0 |
| Bridge & Cox | 1,097 0 0 |
| Anscombe | 1,061 0 0 |
| Chapman | 1,033 0 0 |
| Bishop | 950 0 0 |
| Rayfield | 844 0 0 |

For the erection of Congregational church and manse, at Fenstanton, Hunts. Mr. Tait, architect:—

| | |
|---|---|
| Bunting | £1,837 0 0 |

For erection of bank and premises at Ely, for Messrs. Foster. Mr. H. Hutchinson, architect:—

| | |
|---|---|
| Bunting | 1,688 0 0 |

For the erection of a villa residence in Widmore-road, Bromley, Kent, for Mr. P. H. Luntley. Quantities supplied:—

| | |
|---|---|
| Avard | £2,459 0 0 |
| Wright, Brothers, & Goodchild | 2,225 0 0 |
| Boyce | 2,179 0 0 |
| Payne & Baldwin | 2,126 0 0 |
| Pearce | 2,087 0 0 |
| Crossley | 1,932 0 0 |
| Bullard | 1,902 0 0 |
| Blackmore & Morley | 1,899 0 0 |
| Lee | 1,814 0 0 |

For new town schools for girls and infants, and outbuildings connected, at Waltham Abbey, Essex, for the Waltham Holy Cross School Board. Mr. C. Chapman, architect:—

| | |
|---|---|
| Reed | £3,496 15 6 |
| Keyes | 3,175 0 0 |
| Boyce | 3,015 0 0 |
| Sanders | 2,990 0 0 |
| Bentley | 2,986 0 0 |
| Warr | 2,982 0 0 |
| Bayes & Ramage | 2,930 0 0 |
| Johnson & Co. | 2,825 0 0 |
| Stamp & Bowtle | 2,815 0 0 |
| Vaughan | 2,804 0 0 |
| Blackmore & Morley | 2,785 0 0 |
| Gardener | 2,775 0 0 |

For the erection of house on the Silwood Estate, Sunningdale, Berks, for Mr. Milbourne Clark. Mr. C. W. Horne, architect:—

| | |
|---|---|
| Gladman | £4,924 0 0 |
| Watson | 4,490 0 0 |
| Downs & Co. | 4,099 0 0 |
| Williams & Son | 4,073 0 0 |
| Niblett & Son | 4,040 0 0 |
| Langmead & Way | 3,980 0 0 |
| Pither | 3,742 0 0 |
| Wagner (accepted) | 3,709 0 |

For works in forming new north aisle and west porch to Christ Church, Finchley. Mr. J. Norton, architect. Quantities supplied by Mr. S. J. Thacker:—

| | |
|---|---|
| Boyce | £2,815 0 0 |
| Garrud | 2,783 0 0 |
| File | 2,581 0 0 |
| Farmer & Brindley | 2,580 0 0 |
| Rankin | 2,430 0 0 |
| Robbins | 2,341 0 0 |
| Jobling & Co. | 2,237 0 0 |
| Sawyer | 2,100 0 0 |
| Niblett | 1,939 0 0 |
| Gilmore | 1,909 0 0 |

For the erection of three houses and shops, London road, Enfield. Mr. Thos. J. Hill, architect:—

| | |
|---|---|
| Patman, Brothers | £2,134 0 0 |
| Aney | 2,085 0 0 |
| Sabey & Son | 1,899 0 0 |
| Bayes & Ramage | 1,895 0 0 |
| Fairhead | 1,797 0 0 |
| Childs | 1,645 0 0 |

For the erection of pianoforte manufactory and showrooms at Kensington, for Messrs. Charles Cadby & Sons. Mr. Lewis H. Isaacs, architect. Quantities supplied by Mr. L. C. Riddett:—

| | |
|---|---|
| Patman & Fotheringham | £30,874 0 0 |
| Killby | 30,675 0 0 |
| Browne & Robinson | 30,168 0 0 |
| Scrivener & White | 27,381 0 0 |
| Adamson & Sons | 27,197 0 0 |
| Chappell | 26,745 0 0 |
| Elkington | 25,200 0 0 |

For school buildings, Burton-on-Trent, for the Governors of Allsopp's endowed schools. Messrs. Evans & Jolley, architects:—

| | |
|---|---|
| Smith | £6,305 0 0 |
| Kershaw | 6,116 0 0 |
| Chamberlain | 6,044 0 0 |
| Patterson | 6,030 0 0 |
| Potter | 5,939 0 0 |
| De Ville | 5,864 0 0 |
| Mason | 5,840 0 0 |
| Bowler & Beech | 5,770 0 0 |
| Lowe & Sons (accepted) | 5,745 0 0 |

For new chancel, Holy Cross Church, Liverpool, for the Very Rev. Father Gaughren. Mr. E. Welby Pugin, architect:—

| | | | |
|---|---|---|---|
| Roberts & Robinson | £5,000 | 0 | 0 |
| Yates | 4,358 | 0 | 0 |
| Hughes | 4,300 | 0 | 0 |
| Williams | 4,176 | 0 | 0 |

For house and school at Darenth. Mr. William Eve, architect. Quantities supplied:—

| | | | |
|---|---|---|---|
| Dove, Brothers | £900 | 0 | 0 |
| Gumbrell | 900 | 0 | 0 |
| Lawrence | 897 | 0 | 0 |
| Woodward | 875 | 0 | 0 |
| Nightingale | 873 | 0 | 0 |
| Sharpington & Cole | 851 | 0 | 0 |
| Sheffield | 842 | 0 | 0 |
| Rowe & Verran | 839 | 10 | 0 |
| Salt | 835 | 19 | 0 |
| Blake | 807 | 0 | 0 |
| Cobham | 763 | 0 | 0 |
| Rayner (accepted) | 760 | 0 | 0 |

For block of improved dwellings for the labouring poor, Charterhouse-street, for the Corporation of London. Mr. Horace Jones, architect:—

| | | | |
|---|---|---|---|
| Carter & Sons | £11,825 | 0 | 0 |
| Wigmore | 11,245 | 0 | 0 |
| Perry, Brothers | 10,650 | 0 | 0 |
| Hart | 10,430 | 0 | 0 |
| Ashby & Son | 10,200 | 0 | 0 |
| Conder | 10,068 | 0 | 0 |
| Holland & Hannen | 9,998 | 0 | 0 |
| Scrivener & White | 9,964 | 0 | 0 |
| Tall & Co. | 9,915 | 0 | 0 |
| Mowlem, Burt, & Freeman | 9,900 | 0 | 0 |
| Perry & Co. | 9,897 | 0 | 0 |
| Elkington | 9,845 | 0 | 0 |
| Mortier | 9,643 | 0 | 0 |

*** We are asked to substitute the above for a list published last week.

For warehouse in Milton-street, Finsbury. Mr. Dennison, architect. Quantities by Mr. Stanham:—

| | | | |
|---|---|---|---|
| J. Auley | £2,640 | 0 | 0 |
| Smale | 2,480 | 0 | 0 |
| Boyce | 2,474 | 0 | 0 |
| King | 2,452 | 0 | 0 |
| Sabey & Son | 2,325 | 0 | 0 |
| Stamp & Bowtle | 2,279 | 0 | 0 |
| P. Auley | 2,069 | 0 | 0 |

For stabling at Paddington, for London General Omnibus Company, Limited. Mr. P. Tosh, architect. Quantities supplied by Mr. A. J. Bolton:—

| | | | |
|---|---|---|---|
| Bowley | £1,834 | 0 | 0 |
| Carter | 1,747 | 0 | 0 |
| Mann | 1,686 | 0 | 0 |
| Harris & Sons | 1,675 | 0 | 0 |
| Williams & Son | 1,657 | 0 | 0 |
| Heath | 1,649 | 0 | 0 |
| Aitchinson & Walker | 1,525 | 0 | 0 |
| Goodman | 1,437 | 0 | 0 |
| Perkins | 1,433 | 0 | 0 |
| Mason & Bristy | 1,377 | 0 | 0 |

For continuation of the Thames Embankment, adjoining the Houses of Parliament:—

| | Aberdeen Granite. | Add if Cornish Granite is used. |
|---|---|---|
| Jackson & Shaw | £32,537 | ... £240 |
| Peto, Brothers | 24,100 | ... 300 |
| Mowlem, Burt, & Freeman | 23,958 | ... 364 |
| Dove, Brothers | 23,500 | ... 320 |
| Field, Pook, & Co. | 23,196 | ... 350 |
| Aird & Sons | 22,750 | ... 500 |
| Baker & Sons | 22,800 | ... 400 |
| Lucas, Brothers | 22,800 | ... 400 |
| Perry & Co. | 22,400 | ... — |
| Lee & Sons | 22,369 | ... 427 |
| Webster | 22,000 | ... 375 |

For wharf wall, &c., at Old Swan Wharf, London Bridge, for the Worshipful Company of Fishmongers. Mr. T. Chatfeild Clarke, architect. Quantities by Mr. Mark King:—

| | | | |
|---|---|---|---|
| Conder | £2,941 | 0 | 0 |
| Patman & Fotheringham | 2,795 | 0 | 0 |
| Macey | 2,634 | 0 | 0 |
| Browne & Robinson | 2,539 | 0 | 0 |
| Brass | 2,377 | 0 | 0 |
| Ashby & Sons | 2,357 | 0 | 0 |
| Merritt & Ashby | 2,247 | 0 | 0 |
| Newman & Mann | 2,226 | 0 | 0 |
| Clark & Bracey | 2,197 | 0 | 0 |

For Union-court Chambers, Old Broad-street. Mr. John Wimble, architect:—

| | | Add if extra works in basement are executed. |
|---|---|---|
| Scrivener | £21,770 | ... £1,200 |
| Carter, Brothers | 21,970 | ... 1,240 |
| Ashby & Sons | 19,230 | ... 1,000 |
| Killby | 18,473 | ... 950 |
| Lacey | 18,277 | ... 1,348 |
| Hill, Higgs, & Hill | 18,240 | ... 1,100 |
| Colls & Sons | 17,750 | ... 1,115 |
| Newman & Mann | 17,556 | ... 1,112 |

For warehouse, Bridgewater-gardens, E.C., for Mr. R. M. Pollett. Mr. J. M. K. Hahn, architect:—

| | | | |
|---|---|---|---|
| Jackson & Shaw | £2,550 | 0 | 0 |
| Brass | 2,474 | 0 | 0 |
| Little | 2,429 | 0 | 0 |
| Woodward | 2,380 | 0 | 0 |
| Scrivener & White | 2,343 | 0 | 0 |
| Grover | 2,143 | 0 | 0 |
| Atkinson | 2,063 | 0 | 0 |

For villa residence at Blackheath. Mr. T. Arnold, architect. Quantities prepared by Mr. Buzzard:—

| | | | |
|---|---|---|---|
| Brass | £2,972 | 0 | 0 |
| Newman & Mann | 2,858 | 0 | 0 |
| Hammer | 2,657 | 0 | 0 |
| Jerrard | 2,593 | 0 | 0 |
| McLannen | 2,473 | 0 | 0 |
| Bush | 2,470 | 0 | 0 |

For additions and repairs at No 94, Holles-street, for Messrs. Boosey & Co. Messrs. John Young & Sons, architects:—

| | | | |
|---|---|---|---|
| Clarke & Mannooch | £292 | 0 | 0 |
| Shaw | 265 | 0 | 0 |
| Newmann & Mann | 255 | 0 | 0 |
| Lawrence | 249 | 0 | 0 |
| Bayes & Ramage | 234 | 0 | 0 |
| Edwards | 230 | 0 | 0 |

For alterations to the minister's house, Great Saint Helen's. Mr. H. H. Collins, architect:—

| | | | |
|---|---|---|---|
| Newman & Mann | £712 | 0 | 0 |
| Moreland & Nixon | 698 | 0 | 0 |
| Cohen | 560 | 0 | 0 |

For public-house at Rotherhithe, for Messrs. Courage & Co. Messrs. Snooks & Stock, architects. Quantities by Messrs. Linsdell & Gifford:—

| | | | |
|---|---|---|---|
| Stevenson | £3,384 | 0 | 0 |
| McLachlan | 2,989 | 0 | 0 |
| Greenwood & Sons | 2,921 | 0 | 0 |
| Holloway | 2,897 | 0 | 0 |
| Marsland | 2,888 | 0 | 0 |
| Newman & Mann | 2,786 | 0 | 0 |
| Brass | 2,777 | 0 | 0 |
| Rider & Son | 2,720 | 0 | 0 |

For new premises, Fleet-lane, for Messrs. Cassell, Petter, & Galpin. Mr. F. Chambers, architect. Quantities by Messrs. Pennington & Bridgen:—

| | | | |
|---|---|---|---|
| Holland & Hannen | £28,400 | 0 | 0 |
| Waldram & Co. | 27,690 | 0 | 0 |
| Coleman | 27,678 | 0 | 0 |
| Elkington | 26,990 | 0 | 0 |
| Brass | 26,950 | 0 | 0 |
| Conder | 25,719 | 0 | 0 |
| Browne & Robinson | 24,585 | 0 | 0 |

For detached house at Hornsey, for Mr. William Lister. Mr. William Reddall, architect:—

| | | | |
|---|---|---|---|
| Sewell & Son | £1,708 | 0 | 0 |
| Killby | 1,694 | 0 | 0 |
| Lawrance | 1,685 | 0 | 0 |
| Browne & Robinson | 1,648 | 0 | 0 |
| Cowley | 1,615 | 0 | 0 |
| Patman | 1,598 | 0 | 0 |
| Pritchard | 1,573 | 0 | 0 |
| Cook | 1,520 | 0 | 0 |

For the erection of School Chapel, at Flint, North Wales. Mr. John Hill, architect:—

| | | | |
|---|---|---|---|
| Hughes (accepted) | £750 | 0 | 0 |

*Burton-on-Trent Grammar School.*—The architect states that Messrs. Bowler & Beck's tender, which was accepted, is 3,570*l.*, not as stated last week.

## TO CORRESPONDENTS.

Great pressure on our space forces us to postpone a number of communications.—J. H. E.—J. T.—B. H. & Co.—R. C.—F. F.—Junius.—G. S.—J. D.—H. J. H.—W. H. S. H.—Sir E. L.—F. M.—J. T. L.—M. U.—W. & Co.—L. C. B.—Messrs. B.—Mr. A.—D. & Co.—F. M.—L.—C. P.—W. W.—E. A. L.—A. L. M.—Mr. G.—J. H.—L. L.—L. & Sons.—C. L. E.—R. H.—A. J. B.—T. E.—G. P. W.—G. R. (apply to the City Library, Guildhall).—A. H. (in type).—E. W. P. (in type).—W. C. T. (in type).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.

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